



वाष्कोस लिमिटेड WAPCOS LIMITED

(भारत सरकार का उपक्रम)
जल शक्ति मंत्रालय
(A Government of India Undertaking)
Ministry of Jal Shakti

Power Division,
2nd Floor, Plot No. 57, SKV House, Sector-18
Gurugram-122015, Haryana

TENDER DOCUMENT FOR

**SUPPLYING, INSTALLATION, COMMISSIONING OF 60 KWp GRID
CONNECTED ROOFTOP SOLAR POWER PLANT INCLUDING 5 YEARS
COMPREHENSIVE MAINTENANCE (FROM 2ND YEAR) AT WAPCOS
CORPORATE OFFICE, GURUGRAM**

WAP/POW/NIT/CSR/MISC/2022/01

Date: 03.03.2022

TECHNICAL BID

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NOTICE INVITING TENDER (NIT)

NOTICE INVITING TENDER (NIT)**NIT No. WAP/POW/NIT/CSR/MISC/2022/01****Dated: 03.03.2022**

WAPCOS Limited (A Govt. of India Undertaking) invites **“Online Electronic Tender”** on **“Lumpsum mode”** from experienced and competent bidders, meeting prescribed qualifying criteria as mentioned in tender document.

1.	Name of Work	:	Supplying, Installation, Commissioning of 60 KWp Grid Connected Rooftop Solar Power Plant Including 5 Years Comprehensive Maintenance (From 2nd Year)
2.	Site / Location	:	WAPCOS Corporate Office, Gurugram
3.	Website for viewing tender	:	www.wapcos.co.in and www.etenders.gov.in/e procure
4.	Website for Registration/ Procurement/ uploading of Tender and also viewing & procurement of the Corrigendum/ Addendum, if any.	:	www.etenders.gov.in/e procure
5.	Estimated Cost of Work	:	Rs. 30,00,000.00/- (Rupees Thirty Lakh only) exclusive of GST
6.	Cost of Tender Document	:	Rs. 5,000.00/- (Rupees Five Thousand only) in the form of Demand Draft in favor of “WAPCOS Limited” payable at Gurugram by a Scheduled/ Nationalized bank.
7.	EMD	:	Rs. 60,000 (Refundable) in the form of RTGS/ NEFT/ D.D./ Banker’s cheque/ FDR/ BG in favor of ‘WAPCOS Limited’ payable at Gurugram.
8.	Project Completion Period	:	15 days from the Date of Award + Five (5) Years of Comprehensive Maintenance & Warranty Period
9.	Validity of Bid/Tender	:	60 Days
10.	Last date & time of procurement /download of tender Document	:	09-03-2022 upto 16:00 hours The bidder must officially procure/ download the tender documents from the above portal before the last date and time of sale of tender document in order to submit the bid.

11.	Offline Submission of Technical document, Tender Fees, EMD, and Pass phrases etc. as detail in Tender	:	10/03/2022; 16:00 Hrs. in the following office WAPCOS Limited (A Government of India Undertaking) Additional Chief Engineer, Power Division, 2nd Floor, Plot No. 57, SKV House, Sector-18, Gurugram-122015, Haryana
12.	Last date & time for online submission of Technical & Financial Bid on e-portal	:	10/03/2022; 16:00 Hrs.
13.	Online opening of Technical Bid	:	10/03/2022; 17:00 Hrs.
14.	Online opening of Financial Bid	:	To be Intimated to Technical Qualified Bidders.
15.	WAPCOS Communication address during Tendering and execution of works	:	WAPCOS Limited Additional Chief Engineer, Power Division, 2nd Floor, Plot No. 57, SKV House, Sector-18, Gurugram-122015, Haryana WAPCOS Email: manojkumar-electrical@wapcosindia.com Contact No. +91-1242340425
The Bidder have to submit EMD			

If the office of WAPCOS Limited, Gurugram happens to be closed on the last date and time mentioned for any of the event, the said event will take place on the next working day at the same time and venue.

The tender document has to be downloaded from above specified websites. Bidders are advised to visit above specified websites regularly for updates /Amendments/ Corrigendum, if any. The Updates/Corrigendum/Addendum shall be followed up to submission of tender and it will be the part of tender. The full details about the work, specifications, Drawings, terms and conditions shall be available in the Tender Document. The tender document has to be submitted online on website www.etenders.gov.in/eprocure.

The purpose of this NIT is to provide interested parties with information to assist the preparation of their bid. While WAPCOS Limited has taken due care in the preparation of the information contained herein, and believe it to be complete and accurate, neither it nor any of its authorities or agencies nor any of its respective officers, employees, agents or advisors give any warranty or make any representations, expressed or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in association with it.

Further, WAPCOS Limited does not claim that the information is exhaustive. Respondents to this NIT are required to make their own inquiries/ surveys and will be required to confirm, in writing, that they have done so and they did not rely solely on the information in NIT. WAPCOS Limited is not responsible if no due diligence is performed by the bidders.

IMPORTANT POINTS

- 1.1 The bidder should be an Indian Registered Company under Companies Act 1956/ 2013 Proprietorship Firm/Partnership Firm.
- 1.2 All Bidders are hereby cautioned that Bids containing any deviation or reservation as described in Clauses of "Instructions to Bidders" shall be considered as non-

responsive and shall be summarily rejected.

- 1.3 WAPCOS Ltd. reserves the right to accept or reject any or all bids without assigning any reasons. No Bidder shall have any cause of action or claim against the WAPCOS Ltd. For rejection of his Bid and will not be bound to accept the lowest or any other tender.
- 1.4 No reimbursement of cost of any type or on any account will be paid to persons or entities submitting their Bid.
- 1.5 All information submitted in response to this NIT shall be the property of WAPCOS Limited and it shall be free to use the concept of the same at its will.
- 1.6 It is hereby declared that WAPCOS is committed to follow the principle of transparency, equity and competitiveness in public procurement. The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid documents, failing which the bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected. This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the WAPCOS.

For and on behalf of WAPCOS Limited

**Additional Chief Engineer
WAPCOS Limited**

SECTION– I

INSTRUCTIONS TO BIDDER

SECTION- I
INSTRUCTIONS TO BIDDER

1. INTRODUCTION:

WAPCOS Limited (A Govt. of India Undertaking) invites “**Online Electronic Tender**” on “**Lumpsum Mode**” from experienced and competent bidders, meeting prescribed qualifying criteria as mentioned for “**Supplying, Installation, Commissioning of 60 KWp Grid Connected Rooftop Solar Power Plant Including 5 Years Comprehensive Maintenance (From 2nd Year) at WAPCOS Corporate Office, Gurugram**”

2. QUALIFYING CRITERIA:

The intending bidders must read the terms & conditions of tender documents carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

The Technical Bid shall be uploaded **with colored scanned copies of following documents.**

All the documents must be in serial wise as stated below along with check list and clearly marked page no. on each page (MANDATORY).

Format of Check List				
Sl. No.	Particular of Document	Yes	No	Page Nos. (from- to)
a)	Authorization Letter to sign the Tender on bidder’s original letter head or Power of attorney from the competent authority of the firm.			
b)	Scanned copy of EMD as mentioned in NIT and Scanned copy of Demand Draft for Tender Fees of the amount as mentioned in NIT.			
c)	Letter of Transmittal for Technical Bid in prescribed format on bidder’s original letter Head (Form-1).			
d)	Yearly Turnover and Audited Balance Sheet for Last 5 (five) years ending on the financial year 2020-21 duly certified by Chartered Accountant. Turnover, profit, net worth certificates must be certified by the statutory auditor of the firm/company. Any such certificate must carry the UDIN (Unique Document Identification Number)			
	<ul style="list-style-type: none"> • The contractor should not have incurred any loss (profit after tax should be positive) in more than two years during last five years ending 2020-21 (Form- 			

	A).			
	<ul style="list-style-type: none"> • Turnover: Average annual financial turnover on Construction works should be at least 50% of the estimated cost of work during the immediate last 3 consecutive financial years ending 2020-21. This should be duly audited by the Chartered Accountant doing Statutory Audit. 			
	<ul style="list-style-type: none"> • Full Balance Sheet and Profit & loss Statement of Bidder should be verified by Chartered Accountant. 			
	<ul style="list-style-type: none"> • The contractor should also have satisfactorily completed the similar types of works as mentioned below during the last seven years (Form-H) ending previous day of last date of submission of tender. 			
	<p>Experience of having successfully completed similar nature of work (Similar nature of Work means Supply, Installation, Testing and Commissioning of Roof top or Ground mounted Solar Power Plant) either of the following in the last seven years.</p> <p>a) Three similar completed works costing not less than the amount equal to 40% of the estimated cost.</p> <p style="text-align: center;">or</p> <p>b) Two similar completed works costing not less than the amount equal to 50% of the estimated cost.</p> <p style="text-align: center;">or</p> <p>c) One similar completed work costing not less than the amount equal to 80% of the estimated cost.</p>			
e)	<p>The bidder should not be insolvent, in receivership, bankrupt or being wound up, not have their business activities suspended. Accordingly, Bidder shall submit Solvency certificate with details of Financial Status i.e. Name of the Banker & Current Solvency Certificate (i.e. the solvency certificate) shall be a sum of at least 40% of the estimated cost of work. Solvency Certificate must have been issued after the date of publication of NIT & be addressed to the tendering authority quoting the name of the work</p>			

f)	Name, Address, details of the Organization, Name(s) of the Owner of the firm / company. (Form-B)			
g)	Copy of P.F. and PAN Number.			
h)	Goods and Service Tax (GST): Bidders are advised to get themselves registered for GST, which are mandatory, as per Govt. of India notification regarding GST. Accordingly bidder shall submit relevant documents if already registered. If not registered till date of submission of bid, bidder will give undertaking on bidder letter head stating that they will get registered in GST as per Govt. norms before submission of bills.			
i)	The bidder should be an Indian Registered Company under Companies Act 1956/2013 Proprietorship Firm/ Partnership Firm/ Limited company private or public or corporation. Joint Ventures are not accepted. Copy of Certificate of Incorporation/ Registration/ Partnership Deed or any other relevant document, as applicable, should be submitted along with a copy of address proof. NOTE: Proprietor firms shall submit registration details or shall submit the copy of relevant page of Passbook for the Current Account in the name of Proprietor Firm.			
j)	Bidder should not be blacklisted/ debarred by any government /semi government department/ PSU. Bidders shall give undertaking for not being involved in any form of corrupt and fraudulent practices. (Form-C).			
k)	Letter of understanding the project site on bidder's Letter Head (Form-D).			
l)	'No Deviation Certificate' in prescribed format in Bidder's Letter Head (Form-E).			
m)	Consent Letter to execute the Integrity Pact (Form-F).			

n)	Bidder shall submit Information on litigation history, liquidated damages, disqualification etc. in bidder Letter Head (Form-G).			
o)	Bidder shall submit EMD			
p)	Availability of Key personnel (Form-J).			
q)	Each page of all Volume of Tender document & Addendum/Corrigendum shall be signed by the bidders submitting the Tender in token of his/their having acquainted himself/ themselves and accepted the entire tender documents including various conditions of contract.			

No information relating to financial terms of services should be included in the technical bid. Bids are to be submitted to determine that the bidder has a full comprehension of the tendered work. Where a bidder technical submittal is found non - compliant with the requirement of work, it may be rejected. This process is to assure that only technical acceptable bids are considered for the tendered work.

Turnover, profit, net worth certificates must be certified by the statutory auditor of the firm/company. Any such certificate must carry the UDIN (Unique Document Identification Number)

Contractors who fulfill the above requirements shall be eligible to apply. Joint Ventures are not accepted/ allowed.

3. SPECIAL INSTRUCTIONS TO BIDDERS FOR E-TENDERING

3.1 OUTLINE OF ACTIVITIES FROM BIDDER'S PERSPECTIVE

Submission of Online Bids is mandatory for this Tender. For conducting electronic tendering, bidders shall use the portal: <https://etenders.gov.in/e procure/app>

INSTRUCTION FOR ONLINE BID SUBMISSION

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at: <https://etenders.gov.in/e procure/app>.

3.1.1 REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL:<https://etenders.gov.in/e procure/app>) by

clicking on the link “Online bidder Enrollment” on the CPP Portal which is free of charge.

- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify/nCode /eMudhra etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC’s to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID /password and the password of the DSC / e-Token.

3.1.2 SEARCHING FOR TENDER DOCUMENTS

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective ‘My Tenders’ folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

3.1.3 PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- 2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF

/ XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Space” or “Other Important Documents” area available to them to upload such documents. These documents may be directly submitted from the “My Space” area while submitting a bid and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

Note: My Documents space is only a repository given to the Bidders to ease the uploading process.

If Bidder has uploaded his Documents in My Documents space, this does not automatically ensure these Documents being part of Technical Bid.

3.1.4 SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) Bidder has to select the payment option as “offline” to pay the tender fee as applicable and enter details of the instrument.
- 4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- 5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
- 6) The server time (which is displayed on the bidders’ dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

- 7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 8) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 9) Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 10) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

3.1.5 ASSISTANCE TO BIDDERS

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- 2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The helpdesk numbers are 0120-4001 002, 0120-4001 005 & 0120-6277 787.

3.2 BID SUBMISSION

The entire bid-submission would be online process and single Stage Two Envelope system.

- Technical Bid (Envelope-I of the Tender Document)
- Financial Bid (Envelope-II of the Tender Document)

3.3 OFFLINE SUBMISSIONS OF TECHNICAL DOCUMENTS

The Bidder shall submit following Document offline also.

1. **All the documents in Original, which is uploaded as Technical Bid (See Checklist, In Qualifying Criteria: Online Technical Bid Submission of Section-II, Table-2) shall be submitted with page numbering (MANDATORY)** in separate sealed envelope clearly labeled as "TECHNICAL BID" for the Work (Write Name of Work as mentioned in NIT) along with Details of Bidders Address, Phone, E-mail on Envelope.
2. **Originals EMD and Tender submission fee in the form of Demand Draft** in separate sealed envelope clearly labeled as "**EARNEST MONEY DEPOSIT**"

(EMD) AND TENDER FEE” for the work (Write Name of Work as mentioned in NIT) along with Details of Bidders Address, Phone, E-mail on Envelope.

3. **Pass Phrase of Technical Bid** in separate sealed envelope clearly labeled as “PASS PHASE FOR TECHNICAL BID” for the Work (Write Name of Work as mentioned in NIT) along with Details of Bidders Address, Phone, E-mail on Envelope.
4. **Pass Phrase of Financial Bid** in separate sealed envelope clearly labeled as “PASS PHASE FOR FINANCIAL BID” for the Work (Write Name of Work as mentioned in NIT) along with Details of Bidders Address, Phone, E-mail on Envelope.

NOTE: All above four envelopes shall be submitted in one single envelope clearly labeled as “Documents for Offline Submission” for the Work (Write Name of Work/Project as mentioned in NIT) along with Details of Bidders Address, Phone, E-mail on Envelope.

The offline submissions as mentioned above shall be submitted on WAPCOS address as per date & time mentioned in NIT. In case of non-submission of above offline documents, bids are liable to be rejected.

Note: The Company reserves the right to waive minor deviations/submissions if they do not materially affect the capability of the Tenderer to perform the contract.

3.4 CONTENTS OF FINANCIAL BID

The Financial Bid should be uploaded separately along with Technical bid before last date & time of submission of Tender Documents.

The quoted rate should include all associated costs. The company shall be performing all its duties of deduction of TDS and other deduction on payment made to the contractor as per applicable legislation in force on the date of submission of bid or to be newly / amended introduced during the execution of the Contract.

The tenderer shall quote rates upto zero decimal and as well as in words. In case of any discrepancy rate quoted in words shall prevail.

3.5 OPENING OF FINANCIAL BID

The financial bids of the technically qualified bidders shall be opened at the notified date & time after technical evaluation stage.

4. INSTRUCTIONS TO BIDDER

The purpose of these instructions to serve as a guide to Bidders for preparing offer for carrying out the works in all respect.

- a) The Bill of Quantities (BOQ) is given in **Section VIII**. The tenderer has to quote their offer in lump sum in Bill of Quantities (BOQ). The Lump sum rate shall be quoted up to zero decimal. The tenderer shall quote rate(s) in figures as well as in words. In case of any discrepancy between the two, rate(s) quoted in words shall prevail. In case of discrepancy between quoted rate and amount, rate shall prevail. The payment will be made as per the actual work done and item wise measurement basis. Bidders are advised to examine the available Cost Index/ Market Rate while submitting the tender.
- b) Bidders are advised to quote their rates including the lead/lift/carriage of material at site as per the site conditions. No request for the lead/lift carriage shall be considered after the award of the work.
- c) Submission of a tender by a tenderer implies that the tenderer has read this notice and all other

Tender Documents and has made himself aware of the scope, the specifications, and conditions of contract, local conditions and other factors having bearings on the execution of the work.

- d) WAPCOS Limited desires that the bidders, suppliers, and sub-contractors under the Project, observe the highest standard of ethics during the performance, procurement and execution of such contracts. In pursuance of this requirement, WAPCOS Limited, defines, for the purposes of this provision, the terms set forth below:
- i. “Corrupt Practice” means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
 - ii. “Fraudulent Practice” means any act of submission of forged documentation, or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation, or to succeed in a competitive bidding process;
 - iii. “Coercive Practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - iv. “Collusive Practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

Will reject the award of Contract, even at a later stage, if it determines that the bidder recommended/ selected for award/awarded has, directly or through an agent, engaged in Corrupt, Fraudulent, Collusive, Or Coercive Practices incompetent for the Contract;

Will sanction a party or its successors, including declaring ineligible, either indefinitely or for a stated period of time, to participate in any further bidding/procurement proceedings under the Project, if it at any time determines that the party has, directly or through an agent, engaged in Corrupt, Fraudulent, Collusive, Or Coercive Practices in competing for, or in executing, the contract; and

The party may be required to sign an Integrity Pact, if required; and WAPCOS Limited will have the right to require the bidders, or its suppliers, contractors and consultants to permit WAPCOS Limited to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by WAPCOS Limited at the cost of the bidders.

The Bidder must obtain for himself on his own responsibility and at his own expenses all the information which may be necessary for the purpose of making a bid and for entering into a contract, must examine the BOQ, must inspect the sites of the work, acquaint himself with all local conditions, means of access to the work, nature of the work and all matters pertaining thereto. WAPCOS Limited will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

- e) The Contract shall be governed by each SECTION OF TENDER DOCUMENT i.e. instructions to bidders, selection & qualifying criteria, scope of works, General Conditions for Contract (GCC), Special Conditions for Contract (SCC), Annexure, Forms, Drawings, Technical Specification, Addendum / Clarification / Corrigendum etc. and all other Conditions mentioned in the tender documents.
- f) All Bidders are hereby explicitly informed that conditional offers or offers with deviations from the Conditions of Contract, the bids not meeting the minimum eligibility criteria, Technical Bids not accompanied with EMD in acceptable format, Bids in altered/modified formats, or in deviation with any other requirements stipulated in the tender documents are liable to be rejected.

- g) The bidders shall not tamper or modify any part of the tender documents in any manner. In case in part of the bid is found to be tampered or modified at any stage, the bids are liable to be rejected, the contract is liable to be terminated and the full earnest deposit/retention money/performance guarantee will be forfeited, and the bidder will be liable to be banned from doing any business with WAPCOS Limited.
- h) Incomplete Price bid shall be liable to be rejected, at the discretion of WAPCOS Limited. The total bid price shall cover the entire scope of works covered in the tender.

5. EARNEST MONEY DEPOSIT (EMD)

The Bidder has to submit Earnest Money Deposit (EMD).

a) Earnest Money Deposit (EMD): -

- 1) The Bidders shall submit a Earnest Money Deposit (EMD).
- 2) Copy of the Earnest Money Deposit (EMD) should be uploaded onto the CPP Portal and the hardcopy of the same shall be submitted, as per guidelines mentioned.
- 3) In case the Earnest Money Deposit (EMD) is not received by the stipulated time then the Purchaser reserves the right to forthwith and summarily reject the Proposal of the concerned Bidder without providing any opportunity for any further correspondence by the concerned Bidder.
- 4) The Earnest Money Deposit (EMD) will be executed:
 - a) If a Bidder withdraws the proposal or increases the quoted prices after opening of the Proposal and during the period of Bid validity period or its extended period, if any.
 - b) In case of a successful Bidder, if the Bidder fails to sign the Agreement in accordance with the terms and conditions (including timelines for execution of the Agreement) of this Tender or fails to furnish the Performance Bank Guarantee in accordance with the terms and conditions (including timelines for furnishing PBG) of this Tender.
 - c) During the Bid process, if a Bidder indulges in any act as would jeopardize or unnecessarily delay the process of bid evaluation and finalization.
- 5) The decision of the Purchaser regarding execution of Earnest Money Deposit (EMD) shall be final and binding on the Bidders & shall not be called upon in question under any circumstances.

6. COST OF BIDDING

The Bidder shall bear all costs associated with the preparation & submission of the Bid as well as costs associated for facilitating the evaluation. WAPCOS Ltd shall in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

7. LANGUAGE OF BID

The Bid and all related correspondence and documents relating to the Project shall be in English language only. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate English translation which shall be certified by a qualified translator. Any material that is submitted in a language other than English and which is not accompanied by an accurate English translation will not be considered.

8. CURRENCY OF BID

Bid prices shall be quoted in Indian Rupees.

Tender submitted by tenderer shall remain valid for acceptance as mentioned in NIT from the date set for submission of the tender. The tenderer shall not be entitled within the said period to revoke or cancel or vary the tender given or any item thereof, without the consent of WAPCOS Limited. In case tenderer revokes, cancels, or varies his tender in any manner without the consent of WAPCOS Limited, within this period, his earnest money will be forfeited.

9. AWARD CRITERIA

After closing of Technical & Financial Bid process, WAPCOS Limited will award, the contract to the bidder, whose tender has been determined to be substantially responsive, complete and in accordance with the tender document, and whose total evaluation price for the undertaking the project as detailed in the scope of work is the lowest. If the financial bids of lowest two bidders are equal, then the tender will be treated as cancelled and shall be re-tendered as per the rules of WAPCOS Limited.

10. ANNEXURES

The successful Bidder shall submit the following documents and also follow the guidelines as per “**Section of Annexure**” mentioned in tender document.

ANNEXURE – I: AGREEMENT
ANNEXURE – II: FORM OF PERFORMANCE GUARANTEE
ANNEXURE – III: FORMAT FOR AFFIDAVIT
ANNEXURE – IV: FORMAT FOR INDEMNITY BOND

WAPCOS Limited reserves the right to reject any or all the bids or to cancel the Tender, without assigning any reason(s) whatsoever.

For & on behalf of WAPCOS Limited

**Additional Chief Engineer
WAPCOS Limited**

SECTION– II

GENERAL CONDITIONS OF CONTRACT

1.0 Definitions:

- ❖ The **Contract** means the documents forming the tender and acceptance thereof and the formal agreement executed between the WAPCOS and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-In-Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.
- ❖ In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:
 - “**Client/Employer**” shall mean “WAPCOS Limited”, A Government of India undertaking having their office at 2nd Floor, Power Division, SKV House, Plot – 57, Sector 18, Gurugram, Haryana - 122015 & include their successors & permitted assigns as well as their authorized officer / representatives, for execution of the Work as mentioned in NIT.
 - The “**Company/WAPCOS**” shall mean WAPCOS Limited.
 - The **Site** shall mean the land/or other places on, into or through which work is to be executed under the contract.
 - The **Engineer-in-Charge** shall mean the Engineer Officer appointed by WAPCOS Limited or his duly authorized representative who shall direct, supervise and be in-charge of the work for the purpose of this Contract
 - **Tenderer/Bidder** shall mean the firm/party who intends to participate in this Notice Inviting Tender.
 - **Excepted Risk** are risks due to riots (other than those on account of contractor’s employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to Government’s faulty design of works.
 - **Market Rate** shall be the rate as decided by the Engineer-in-Charge on the basis of the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned in Special Conditions of Contract to cover, all overheads and profits.
 - **Schedule(s)** referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of Rates of the government mentioned in Special Conditions of Contract hereunder, with the amendments thereto issued upto the date of receipt of the tender.
 - **Drawings** means all the accompanying general drawings as well as all detailed drawings, which may be used from time to time or desired by WAPCOS Limited.
 - **District Specifications** shall mean the specifications followed by the State Government in the area where the work is to be executed.

- The **Contractor/Successful Bidder** shall mean the firm or company whose bid has been accepted by WAPCOS Limited and shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.
- **Tendered value** means the value of the entire work as stipulated in the letter of award.
- **Month** means calendar month of the Gregorian calendar.
- **Date of commencement of work:** The date of commencement of work shall be the date of start as specified or the first date of handing over of the site, whichever is later, in accordance with the phasing if any, as indicated in the tender document.
- The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.
- The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Bill of Quantities shall, unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.
- The several documents forming the Contract are to be taken as mutually explanatory of one another.
- In the case of discrepancy between the Bill of Quantities and/or the Specifications, the following order of preference shall be observed:-
 - Description of Bill of Quantities
 - Particular Specification and Special Condition, if any.
 - CPWD/DSR Specifications
 - Indian Standard Specifications (IS)/B.I.S./IEC/MNRE guidelines
- Equipment/materials shall mean and include all type of construction equipment & materials etc. required for true and satisfactory completion of the work under this contract.
- Workmanship shall mean the method/manner in which the jobs of the different items, whether included in the schedule or not but are required for true & satisfactory completion of the work under this contract, are executed. General conditions shall mean all the clauses of General conditions of the proposed contract stated hereinafter.
- The specification shall mean the specification annexed to or issued with the

General Conditions and shall include the schedule and drawings attached thereto.

2.0 Scope of Work:

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

1. The Scope of Work includes all Check Survey, detailed design & Engineering, Procurement & Supply of Equipment and Material, Testing at manufacturer's works, Inspection, Packing and Transporting, Supply, Receipt, Unloading and Storage at site, associated Civil Works, Services, Permits, and other relevant permits for net meter application, Licenses, Statutory Approvals, Installation and incidentals, Insurance at all stages, Erection, Testing and commissioning of 60 KWp Grid Interactive Roof Mounted Solar PV Power Plant including warranty and performance demonstration with associated Power evacuation system up to the designated Substations/Locations along with its route survey and Five (5) years comprehensive operation and maintenance with material & man power in accordance with Technical Specifications.
2. Study the existing power system including existing 40 KWp solar rooftop plant at WAPCOS Corporate Office, Gurugram and space available on roof top for installation of solar PV system. Total erection works and material item supplies should be carried out as per applicable latest IS, IEC & IEEE standards / codes with solar grade with appropriate Ingress protections and get it approved by the WAPCOS before installation.
3. Bidder shall also integrate the Newly installed roof top solar with existing roof top solar plant and synchronization with grid is in the scope of successful bidder.
4. Operative Maintenance Contract for 5 years including breakdown maintenance.
5. Metering and Grid synchronization related approvals, Liasoning and Bi-directional meters and CT's to be provided as per latest electricity norms. Also clearance/NOC from other statutory authority like Electrical inspector and other related applicable Government authority. No extra payment shall be made by the WAPCOS for liasoning works to the vendor. However, statutory fees paid by the vendor to the Government Departments/Electricity Boards for approval of extension of load/NOC etc. shall be reimbursed to the vendor on submission of original payment receipt to the WAPCOS. Also clearance from with MNRE or Central/State Government for obtaining capital subsidy, if applicable
6. Electrical Inspector certificate of existing wiring are necessary.
7. Valid certificate of the licensed Agency regarding the compliance of the fire prevention and life safety measures shall be submitted.

8. The bidder must acknowledge that all the work of the project must be in the observance of licensed electrical contractor. The responsibility of electrical works, safety precautions and safety parameters of the project will be of licensed electrical contractor and awarded bidder, which must as per standards specified.

DETAILED SCOPE OF WORKS

Electrical:

1. Power cables, communication cables & control cables of armored and Solar grade.
2. Synchronizing / Paralleling equipments to achieve flaw less synchronizing with electricity board grid and captive diesel generator grid as desired / required by WAPCOS i.e. 100% utilization solar power.
3. Lighting arresters, earthing, cable trays, cable trenches, terminations and etc.
4. Armored copper cables for power should be laid up to AC junction box.
5. From AC junction box to main junction box armored aluminum power cable should be considered.
6. Checking the feasibility of existing Control Panel/Switch Gear. Modification of existing outgoing feeder protection, which may include extension of bus bars in the Bus and outgoing section, metering and control circuits and energy meter to suite for receiving solar power for both grid connections (i.e. DG & EB).
7. The Bidder shall provide the display board of size 3ft x 3ft that gives detailed information of system along with the contact details of manufacturer.
8. Suitable earthing with GI strips for following items provided at each plants.
 - Civil supporting structure
 - Modules
 - Inverters
 - DC junction, Distribution & combiner boxes
 - AC junction & combiner boxes
 - CT/PT Unit
 - Additional earthing for existing main panel or transformer if required.
9. Solar PV Power Plants with associated system (Typical) shall include but not be limited to the Supply, Erection, and Testing & Commissioning of 60KWp Solar PV modules, PV array, fixed PV array support structure, String/Array combiner boxes, DC cabling, DC distribution box, Inverter, AC cabling, AC distribution box,

plant AC energy meter, Surge Arrestors, Lighting arrestor, CT/PT net meter load energy meter and data acquisition system etc.

Civil:

1. Civil Works shall be performed with respect to the following but not limited to:
 - Trimming of tress and removing the unwanted materials in rooftop.
 - In case of ground mounted system site leveling activities like removal of trees and bushes, undertaking blasting related works, disposal of cutting materiality shall be the responsibility of contractor. The area shall be suitably cut and filled to suit the layout requirement. The site levelling and grading scheme incorporating the above aspects shall be submitted to WAPCOS for approval.
 - Design and construction of foundation for module mounting Structures having modules, all electrical equipments, Transformer platforms and allied equipment foundations.
 - Internal road and pathways and drains for Ground mount system and cable trenches (if applicable)
 - Civil foundation work of for AC Distribution Board, DC distribution Board switchgears, Solar Road lights etc. Erection Work shall be performed with respect.
 - Construction of Shed for housing CT/PT Unit, invertor, AC distribution boxes etc.
 - GI structural supports to mount PV panel as per WAPCOS approved design and drawings given along with tender document.
 - If Drilling holes deep in Roof Concrete Slab grouting the same with injectable grout before and after inserting the M20 & 6-inch-long anchor bolts and to be casted with RCC block of 300x300x300mm as per the approved Drawings.
 - Providing concrete pedestal as per drawing and laying M20, 6inch length anchor bolts at the time of casting.
 - Providing and laying cement plaster and doing waterproof treatment around the pedestals to prevent leakage of water.
 - All GI structural steel section should be 'CE' quality certified.

- Damaged existing water proofing sheet should be re-laid with new one and also around the civil pedestals, to ensure no rainwater will leak inside the building after completion of the total erection works.
- The structural design should be for 150KM / hours wind speed.
- Providing concrete pedestal as per drawing and laying M20 6-inch length anchor bolts at the time of casting for the sites where the Solar Panels are intended to be mounted on RCC flat roof.
- Providing, fabricating and laying galvanized structural steel section, plates, nuts washer and bolts, and cable tray as per drawing with thickness of galvanizing of minimum 90 microns
- Fabrication works are to be done at factory only and submit structural stability certificate from the structural engineer/reputed engineering college in the area that designed MS structure can sustain the wind pressure of 150 kmph with the load of solar panels. Only grouting and assembly with nuts and bolts are to be done at the site.
- Contractor shall provide the supervisory license of electrical supervisor as well as the certificates /PWD license of Electrician /Wireman.
- The supporting MS section/ girders should be located at a height such as to completely avoid the parapet wall shadows from falling onto the PV modules.
- Replacement of existing conventional energy meter with bidirectional energy meter for net metering and grid connection etc. This will also include the replacement of CT/PT, metering box etc.
- Bidder shall provide permanent arrangement for the module cleaning in the plant (both rooftop and ground mounted system). This shall include pumps, motor, and requisite laying network of GI pipes throughout the periphery. Opening from the GI pipe with manual isolating valves should be provided at regular intervals. Water used for module cleaning shall be provided through the nearest available water line within the plant. Water supply shall be provided free of cost to the O&M contractor.

Drawings and documents:

- A. The design documents to be submitted by the successful bidder will include but not limited to:
- ❖ String Sizing & Array design

- ❖ String Layout
 - ❖ Array Layout
 - ❖ AC Protection
 - ❖ Inverter sizing
 - ❖ DC Protection
 - ❖ DC Cable size calculation
 - ❖ DC cable specification
 - ❖ DC cable schedule, voltage drop and power loss calculation
 - ❖ String monitoring unit specification
 - ❖ DC & AC earthing and pit calculation
 - ❖ Lightning protection details/specification
 - ❖ All technical specification of AC components
 - ❖ Cable schedules
 - ❖ PV System Simulation Report with proposed modules and inverters
 - ❖ Bill of quantity of entire project.
- B. Prepare & furnish the following all the as-built drawings in soft copy (AUTOCAD) and hardcopy to obtain approvals and All operating manuals, user manuals, system manuals, etc., as required.
- ❖ Shadow analysis of the roof.
 - ❖ General arrangement and dimensioned layout
 - ❖ Schematic drawing showing the SPV panels, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc
 - ❖ Layout of solar PV Array and Single line diagram with specification of all components
 - ❖ Design document for mounting structure including certificate showing wind speed withstanding capacity of the structure (STAAD Pro / Equivalent).
 - ❖ Mounting structure drawing
 - ❖ Structural drawing along with foundation details for the structure.
 - ❖ Civil drawings of control room building if any.
 - ❖ Cable layout (indicating details of cable route for power & communication cables)
 - ❖ Itemized bill of material for complete SPV plant covering all the components and associated accessories.

- ❖ Sizes and specification of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be furnished.

Data Acquisition, Performance monitoring & reporting

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

- ❖ All major parameters should be available on the digital bus and logging facility for energy auditing through the internal microprocessor and can be read on the digital front panel at any time the current values, previous values for up to a month and the average values. The following parameters should be accessible via the operating interface display and also on the dedicated laptop in the concerned office

- ✚ AC Voltage
- ✚ AC Output current
- ✚ Output Power
- ✚ DC Input Voltage
- ✚ DC Input Current
- ✚ Time Active
- ✚ Time disabled
- ✚ Time Idle
- ✚ Temperatures (C)
- ✚ Inverter Status
- ✚ Irradiation
- ✚ Module temperature

- ❖ Protective function limits – (Viz- AC overload voltage, AC under voltage, over frequency. Under frequency, ground fault. PV starting voltage, PV stopping voltage, Over voltage delay, under voltage delay, over frequency, Ground fault delay, PV Starting delay, PV stopping delay)

The successful bidder, to whom the work will be awarded, shall have to take up necessary survey for assessment of suitability, Solar PV plant capacity of roofs from technical, structural and other considerations prior to taking up above mentioned activities for installation of the system. The contractor shall have to submit the detailed survey/Design report of site for review and necessary approval of the installation capacity by WAPCOS Limited.

3.0 Bid Price:

The intending bidder(s) required to quote the lump sum rate as per BOQ. The rate quoted shall remain firm without the price variation clause. The bidders should not claim for any

price variation / escalation. No price variation / cost escalation is accepted. The bid submitted with a price variation/escalation clause will be treated as non- responsive and rejected.

The rates quoted shall also include cost of loading, transportation, unloading and stacking of items required for the construction.

4.0 Period of validity of Bids:

The validity of the tender shall be for a period of 60 (sixty) days from the date of publishing of tender. Prior to the expiry of the original validity period WAPCOS may request extension in the period of validity for a maximum period of 90 (Ninety) days. The Bidder may refuse the request without forfeiting his EMD. Bidders agreeing to the request will not be required nor permitted to modify their respective bids but will be required to extend the validity or their bid securities correspondingly.

5.0 Performance Guarantee:

The contractor shall submit an irrevocable Performance Guarantee of 3% (Three percent) of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified in Special Conditions of Contract from the date of issue of letter of acceptance. The Performance Guarantee shall be issued from a Scheduled/Nationalized Bank. This period can be further extended by the Engineer-in-Charge up to a maximum period as specified in Special Conditions of Contract on written request of the contractor stating the reason for delays in procuring the Performance Guarantee, to the satisfaction of the Engineer-in-Charge.

The Performance Guarantee shall be initially valid up to the stipulated date of completion plus 1 (one) year claim period beyond that. In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest.

In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of WAPCOS Limited.

The Performance Guarantee shall be refunded to the Contractor soon after the completion of works and issuance of the completion certificate.

The confirmation of the Performance Guarantee submitted to WAPCOS Limited by the bidder may be sought from issuing bank through **Structured Financial Messaging System (SFMS)**, as per details given below:

Name of Bank: Indian Overseas Bank

Address: NHB, Gurgaon,

Branch Code: 1935

IFSC Code: IOBA0001935

Beneficiary: WAPCOS Limited

6.0 Recovery of Security Deposit:

The person/persons whose tender(s) may be accepted (hereinafter called the contractor) shall permit WAPCOS Limited at the time of making any payment to him for work done

under the contract to deduct a sum at the rate of 2.5% of the gross amount of each running and final bill till the sum deducted will amount to security deposit of 2.5% of the tendered value of the work. Such deductions will be made and held by WAPCOS Limited by way of Security Deposit unless he/they has/have deposited the amount of Security at the rate mentioned above.

The Security Deposit shall be released after successful completion of Defect Liability Period.

7.0 Time Schedule:

The basic consideration and the essence of the contract shall be the strict adherence to the time schedule specified in the NIT and ITB.

8.0 Extension of work completion time :

Ordinarily no time extension shall be granted. However, if the work is suspended due to reasons beyond the control of the contractor, the contractor shall immediately give notice in writing within 7 (seven) days to the controlling officer for each occasion. On receipt of such notice, the controlling officer may verify the matter and agree to extend the completion period as may be reasonable but without prejudice to other terms and conditions of the contract as the case may be if the reasons behind the suspension of work are found to be justified.

9.0 Liquidated Damage:

If the contractor fails to complete the work successfully within the time specified in the contract or any extension thereof, the company shall recover from the contractor as liquidated damages a sum of half percent (0.5%) of the contract value of works for each calendar week of delay or part thereof of delay subjected to Force Majeure.

The total recovery against liquidated damage shall not exceed ten percent (10%) of the contract value of the work.

An extension of time without imposition of liquidated damage, may be granted for delay in execution of work provided there is no fault whatsoever on the part of the contractor. Such extension may only be granted on the basis of application to be submitted by the contractor who has to establish that the extension of time required by him was not due to his fault.

10.0 Defect Liability Period:

The term 'Defect Liability Period' shall mean the period of one year from the date of completion of the work. If any defect is found within the defect liability period, the contractor shall be liable to rectify/replace the material at their own cost and responsibility.

Defects/rectification work so notified shall have to be attended and completed satisfactorily within 15 (fifteen) days. For faithful & due fulfillment of all obligations, this defect liability period shall be covered by the Security money already retained from the contractor.

After completion of Defect liability period, and on completion of satisfaction rectification of defect, if any reported within the defect liability period, and on receipt of the application from the contractor, controlling officer of the work shall recommend for refund of the Security money.

11.0 Measurements of Work done:

All items of work carried out by the contractor in accordance with the provision of the contract having a financial value shall be entered in the measurement book/ log book etc. as prescribed by the company so that a complete record is obtained of all works performed under the contract and the value of work can be ascertained and determined there from.

Measurement shall be taken jointly by the supervisory officer or his authorized representative and by the contractor or his authorized representative. Every measurement thus taken shall be signed and dated by both the parties.

In the event of failure on the part of the contractor to attend or send his authorized representative after receiving the information to countersign or record objection within a week from the date of measurement, the measurement taken by the Engineer-in charge/controlling officer or his authorized representative shall be taken to be correct measurement of the work done.

The contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for measurements and recording levels.

12.0 Terms of Payment:

A. Payment Schedule

The Payment Schedule includes a schedule setting out each Milestone Event to be achieved for the Works.

B. Contractor's Application for Payment

From the date of issue of the Notice to Proceed the Contractor may submit a Request for Payment, to WAPCOS Limited Representative.

Within each Request for Payment the Contractor shall show separately:

- (i) the amounts which the Contractor claims to be payable as the cost of the Works completed; and
- (ii) the cumulative amount of all prior payments made by WAPCOS Limited; and
- (iii) any amounts to which the Contractor considers are due and payable to it in accordance with the provisions of the Contract.

The Contractor's Request for Payment shall:

- (i) be prepared on forms in the form and in a number advised by WAPCOS Limited Representative; and
- (ii) contain confirmation of the relevant Milestone Events which, in the opinion of the Contractor have been achieved in that month which applies to each such Milestone Event; and
- (iii) be accompanied by:
 - ❖ Copy of relevant records of measurement/inventory list of works, jointly taken and signed by both the parties;
 - ❖ A status report describing in such detail as may reasonably request, the percentage of any uncompleted Milestone Event for the month in question and the work to be undertaken by the Contractor prior to the next Request for Payment;

- ❖ Certification by WAPCOS Limited Representative confirming that the Milestone Events referred to in the Request for Payment have been achieved.
- ❖ Confirmation by the Contractor of any amounts due and owing from the Contractor to WAPCOS Limited pursuant to the Contract;
- ❖ The Contractor's certification that the quality of all completed Works accords with the requirements of the Contract;
- ❖ The Contractor's certification that each obligation, item of cost or expense mentioned in that Request for Payment has not been the basis of any previous payment.
- ❖ The Contractor's certification that it has reviewed all financial and budget data contained in the Request for Payment;
- ❖ The Contractor's certification that the quality of all completed Works accords with the requirements of the Contract;
- ❖ The Contractor's certification that each obligation, item of cost or expense mentioned in that Request for Payment has not been the basis of any previous payment; and
- ❖ The Contractor's certification that each Subcontractor who performed part of the Works which was included in the immediately preceding Certificates of Payment was paid all amounts then due to it for such Works
- ❖ The Contractor providing evidence of the validity of the Contractor's Insurances.

C. Certificates of Payment

Within 14 (fourteen) Business Days of receipt of the Contractor's Request for Payment under Clause 5.B [Contractor's Application for Payment], WAPCOS Limited and WAPCOS Limited Representative shall review such request and, shall issue to the Contractor, a Certificate of Payment certifying what amounts WAPCOS Limited shall pay. Each Certificate of Payment shall be for an amount which in the opinion of WAPCOS Limited, is the basis of the Request for Payment and pursuant to the Contract, is properly due to the Contractor (the "Gross Certifiable Amount") less (i) the cumulative amounts of payments previously certified as due to the Contractor, (ii) any deduction on account of recovery of Advance Payment, and (iii) Retention Amount.

In the event that the Contractor fails to achieve any Milestone Event specified in the Payment Schedule, the Contractor shall not be entitled to the payment value attributable to that Milestone Event until the relevant Milestone Event has been achieved. When the relevant Milestone Event is achieved, the Contractor may include the payment value attributable to the Milestone Event in the next Request for Payment.

No sum shall be included in the Certificate of Payment in respect of Materials yet to be incorporated into the Permanent Works unless the WAPCOS Limited Representative is satisfied that:

- ❖ such Materials have been properly acquired and properly and not prematurely delivered to the Project Site;
- ❖ such Materials have been properly stored on the Project Site and fully protected against loss, damage or deterioration;
- ❖ the Contractor's records of the requisitions, orders, receipts and use of any Materials are kept in a form approved by the WAPCOS Limited Representative, and such records are available for inspection by the WAPCOS Limited Representative; and
- ❖ The Contractor has submitted a proper statement of the cost of acquiring the Materials together with such documents as may be required for evidencing such cost.

Without prejudice to any other rights of WAPCOS Limited to withhold payment to the Contractor, WAPCOS Limited may withhold from any payment due to the Contractor such amount as WAPCOS Limited deems reasonably necessary or appropriate:

- (i) if in the opinion of the WAPCOS Limited Representative the progress of the Works at the time of the Request for Payment is behind the progress of the Works as set out in the Programme; and/or
- (ii) to protect it from any losses, expenses, costs or liability because of any one or more of the following reasons:
 - ❖ defects and deficiencies in any Works, whether or not payment has been made;
 - ❖ unsatisfactory performance of the Contract;
 - ❖ the filing of third party claims relating to the Works or any of its commitment parts for which the Contractor is liable;
 - ❖ the Contractor's failure to make payments to Subcontractors;
 - ❖ failure by the Contractor to provide or procure replacement Performance Security in accordance with the Contract;
 - ❖ failure by the Contractor to provide evidence of insurance coverage in accordance with the Contract;
 - ❖ reasonable evidence that Completion will not occur by the Time for Completion;
 - ❖ any overpayments made by WAPCOS Limited with respect to a previous payment;
 - ❖ failure by the Contractor to submit a properly updated monthly Programme and
 - ❖ failure by the Contractor to provide satisfactory evidence that the costs of all labor and Materials and other obligations arising out of the Contract have been fully satisfied and discharged by the Contractor and/or to otherwise fail to submit adequate supporting documentation for any Request for Payment.

Any Provisional Sum Works shall only be executed in whole or part upon the WAPCOS Limited Representative's instruction. If the WAPCOS Limited Representative issues no such instruction, the Provisional Sum Works shall not form part of the Works and the Contractor shall not be entitled to payment for it. The Contractor shall be deemed to have allowed the necessary time and resources to

enable design and Execution of the Provisional Sum Works in so far as the scope and nature of the Provisional Sum Works was reasonably foreseeable.

The Contractor shall be entitled only to such amount in respect of the Provisional Sum Works as the WAPCOS Limited Representative determines in accordance with this Clause 5.C. The WAPCOS Limited Representative shall notify the Contractor of any such determination. The WAPCOS Limited Representative shall have the authority to issue instructions to the Contractor for every Provisional Sum Works for which the Contractor shall be entitled to a part of the Provisional Sum as determined by the WAPCOS Limited Representative.

The Contractor shall produce to the WAPCOS Limited Representative all quotations, vouchers, invoices, accounts or receipts in connection with the expenditure in respect of the Provisional Sum Works, except where the Provisional Sum Works is valued in accordance with the item wise rates quoted by the Contractor in its bid submitted to the Employer.

In respect of every Provisional Sum the WAPCOS Limited Representative shall have authority to issue instructions for the execution of work or for the supply of goods, materials, Plant Sums or services by the Contractor, in which case the Contractor shall be entitled to an amount equal to the value thereof determined in accordance with Clause 5.C.

D. Payment

WAPCOS Limited shall pay the amount certified in a Certificate of Payment less the amount paid earlier in accordance with Clause 5.C [Certificate of Payment], no later than [15 (fifteen)] Business Days from the date of such Certificate of Payment.

Payment Terms

- ❖ Advance Payment: 10% of the contract amount will be paid as advance payment against unconditional Bank Guarantee. Advance will be deducted proportionately from each payment until same is fully repaid.
- ❖ 50% of the quoted amount – against supply of all the material as per scope of work which include pre-dispatch inspection, supply of all the design & drawings, test reports and other documents as per tender conditions.
- ❖ 45% of the quoted amount - against installation, testing, and successfully commissioning of Solar PV plant and other project components and handing over the complete project.
- ❖ 5% of the quoted amount – after completion of 5 years of comprehensive maintenance period.

13.0 Change of Quantity:

The quantity mentioned in the schedule of work is provisional. The company reserves the right to vary the quantities as may be necessary but such variation shall be limited to $\pm 30\%$ (plus or minus thirty percent) of the contract price. Payment shall be made as per execution.

14.0 Labour License:

The contractor shall obtain a valid license under the Contract Labour (R&A) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986.

The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.

Any failure to fulfil these requirements shall attract the penal provisions of this contract arising out of the resultant non-execution of the work.

The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time to time and rules framed thereunder and other labour laws affecting contract labour that may be brought into force from time to time.

15.0 Compliance of Labour Laws:

The Contractor shall comply all statutory Labor Laws to protect the labourers engaged by them. In this connection the contractor will be required to execute an Indemnity Bond (as per specimen enclosed as Annexure - IV) after placement of Letter of Intent / Order.

16.0 Variation, Omission, Addition & Alteration:

The Contractor shall not modify the work except under direction in writing by the Company. The quantities provided in the Schedule of work are provisional only, which may vary up to any extent or may be deleted altogether. The quoted rate of each item shall remain firm till completion of contract. The company reserves the right to alter, amend and omit or otherwise vary the quantities as may be necessary but such variation will be limited to $\pm 30\%$ (plus or minus thirty percent) of the contract price.

17.0 Approval:

The contractor shall obtain approval for all the designs associated with civil, mechanical and electrical work which includes design of the plant & layout, MMS & other Structures, fabrication work, foundation, cable sizing, wiring diagram etc. prior to the execution of work and for this purpose the contractor shall submit all design and drawing for obtaining approval from WAPCOS Limited. The structural design and civil design of the PV module mounting structure and foundation should be prepared and approved by a Structural Engineer/ Civil Engineer/Mechanical Engineer.

If the contractor has in-house facility for structural design and civil design, the array structure and foundation design should be signed by competent engineers having minimum LBS / ESE /EBA license, otherwise design should be prepared and or vetted by reputed civil engineering design firm having structural engineer with minimum LBS / ESE / EBA License.

Materials: Contractor shall obtain prior approval for the equipment and materials deliverable under the project from WAPCOS Limited as mentioned in the technical specification.

18.0 Supplementary Works:

Whenever supplementary works become unavoidable for completion of the work in all respect, the Contractor shall bring the matter to the notice of the Controlling Officer and the controlling Officer shall advise the contractor to proceed with such item(s) of work.

Rates for supplementary item shall be arrived on pro-rata basis from the existing items in the contract. When the above provision is not applicable, the rate shall be taken from C.P.W.D., DSR schedule prevailing at the time of submission. In case of Market Rate, the contractor will be entitled of 15% (Fifteen percentages) on cost of materials and labour to cover all overheads and profits. No extra overheads and profits shall be payable on the work assigned to other agency(s) by the contractor.

19.0 Agreement:

The Contractor will have to sign an agreement with WAPCOS Limited as per the format specified in Annexure-I. The agreement is non-exclusive in nature. The agreement shall not restrict WAPCOS Limited from contracting for identical or similar services from any other person/party.

This agreement shall initially be valid for a period of the contract which may be extended for an additional period unless as provided herein revoked earlier for whatever reasons. If at any stage during the tenure of this agreement, it comes to the notice of WAPCOS Limited, directly or through some other complaint, that the contractor had misrepresented the facts or submitted any false information or hidden any information, which could have affected the signing of this agreement with the agency, this agreement shall stand terminated immediately upon intimation to the Contractor.

WAPCOS Limited reserves the right to suspend the operation of this agreement, at any time, due to change in its own license conditions or upon directions from the competent government authorities without citing any reasons thereof. In such a situation, WAPCOS Limited shall not be responsible for any damage or loss caused or arisen out of aforesaid action. Further, the suspension of the agreement will not be a cause or ground for extension of the period of the agreement and suspension period will be taken as period spent. During this period, no charges shall be payable by WAPCOS Limited.

WAPCOS Limited may, without prejudice to any other remedy available for the breach of any conditions of agreement, by a written notice of one month issued to the agency at its registered office, terminate or suspend this agreement under any of the following circumstances:

- a) The contractor failing to perform any obligation(s) under the agreement.
- b) The contractor failing to rectify, within the time prescribed, any defect as may be pointed out by WAPCOS Limited.
- c) The contractor going into liquidation or ordered to be wound up by competent authority.

Either party may terminate the agreement, by giving notice of at least fifteen days in advance. The effective date of surrender of agreement will be one month counted from the date of receipt of such notice by the other party or the authority that signed the agreement on behalf of other party.

It shall be the responsibility of the contractor to maintain the agreed quality of service, even during the period when the notice for surrender/termination of agreement is pending and if the quality of performance is not maintained, during the said notice period, it shall be

treated as material breach liable for termination at risk and consequent of contractor and Security Deposit shall be forfeited, without any further notice.

Whenever breach of non-fulfilment of agreement conditions may come to the notice of WAPCOS Limited through complaints or as a result of the regular monitoring, wherever considered appropriate WAPCOS Limited may conduct an inquiry either suo-moto or on complaint to determine whether there has been any breach in compliance of the terms and conditions of the agreement by the contractor or not. The contractor shall extend all reasonable facilities and shall endeavor to remove the hindrance of every type upon such inquiry.

Actions pursuant to termination of Agreement: Notwithstanding any other rights and remedies provided elsewhere in the agreement, upon termination of this agreement.

- a) Firm shall not represent the WAPCOS Limited in any of its dealings.
- b) Firm shall not intentionally or otherwise commit any act(s) as would keep a third party to believe that it is still the WAPCOS Limited's service provider.
- c) The expiration or termination of the Agreement for any reason whatsoever shall not affect any obligation of either Party having accrued under the Agreement prior to the expiration or termination of the Agreement and such expiration or termination shall be without prejudice to any liabilities of either Party to the other Party existing at the date of expiration or termination of the Agreement.

The rights and obligations arising out of this agreement shall not be assigned or transferred to a third party without prior written consent of either party.

Notwithstanding anything contained herein, either party to this agreement shall have the right to terminate this contract by giving the other party 30 days' notice in writing.

If the service of the Contractor is found to be not satisfactory, the contract will be terminated with one month's notice and the Contractor will not be eligible for any compensation on this account.

20.0 Force Majeure:

If performance by either party of its duties and obligation under this agreement is prevented or delayed by circumstances of force majeure including, but not limited to fire, flood, earthquakes, strike, war, riots, insurrection, any action undertaken or restriction imposed by authority of any Government agency of court, shortage of equipment or raw materials or any other act beyond its reasonable control, the time within which the affected party must perform shall be delayed for a period under such circumstances to a maximum of 120 days during which the parties shall use alternate methods, but after which period either party shall have the right to terminate the agreement. Determination of this agreement shall not relieve either party from the payment of the sum or performance of other duties and obligations, which may be owing to the other, as a result of the operation of this agreement prior to such termination.

21.0 Settlement of Disputes, Arbitration

Any dispute, controversy or claims arising out of or relating to this Agreement or the breach, termination or invalidity thereof, shall be settled through following mechanism:

- a) Firstly, the aggrieved party shall write a letter to the other party detailing its grievances and calling upon the other party to amicably resolve the dispute by convening a joint meeting. Accordingly, the parties as per their convenience shall

jointly convene the said meeting (s), wherein minutes of the said meeting (s) shall be prepared and countersigned by all the parties. It is mandatory to prepare minutes of meeting (s) and to be countersigned by all the parties, irrespective of the outcome of the said meeting (s).

- b) In the event the parties are unable to reach on any settlement in the said meeting(s), then the aggrieved party shall mandatory resort to pre-litigation mediation mechanism with Delhi High Court Mediation Cell New Delhi.
- c) It is only upon failure of the pre-litigation mediation mechanism with Delhi High Court Mediation Cell, then the aggrieved party shall resort to resolution of disputes through arbitration of a Sole Arbitrator. The appointing authority of Sole Arbitrator is CMD, WAPCOS Limited, to which neither of the parties have any objection nor they shall ever object.
- d) Subject to the parties agreeing otherwise, the Arbitration proceedings shall be conducted in accordance with the provisions of the Indian Arbitration and Conciliation Act, 1996 (amended as on date).
- e) The place/seat of arbitration shall be Delhi and any award whether interim or final, shall be made, and shall be deemed for all purposes between the parties to be made. In Delhi, The arbitral procedure shall be conducted in English language and any award or awards shall be rendered in English. The procedural law of the arbitration shall be Indian Law. The award of the arbitrator shall be final and conclusive and binding upon the Parties.
- f) The Contract and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims) shall be governed by and construed in accordance with the laws of India and the Parties submit to sole & exclusive jurisdiction of courts at Delhi.

22.0 Jurisdiction

Any dispute connected with this contract shall fall within the jurisdiction of Courts at New Delhi.

23.0 Completion of Work:

Completion of work means completion of the work in totality and acceptance / takeover of the same by the company. Partial or phase wise completion will have no bearing towards consideration of guarantee / defect liability period.

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Engineer-in-Charge and within thirty days of the receipt of such notice, the Engineer-in-Charge shall inspect the work and if there is no defect in the work, shall furnish the contractor with a final certificate of completion. Otherwise a provisional certificate of physical completion indicating defects (a) to be rectified by the contractor and/or (b) for which payment will be made at reduced rates, shall be issued.

But no final certificate of completion shall be issued, nor shall the work be considered to be complete until the contractor shall have completed the defects.

24.0 Safety Rules:

All instruments/equipments/fittings/fixtures/structures with respect to their location, layout, general arrangement and design and equipment, structural design, etc. shall be

safe to the personnel and conform to the relevant safety rules and regulations/statutory requirement issued by the State Government and the Central Government as well as to:

- i. Indian Electricity Rules 2005
- ii. Indian Electricity Act 2003
- iii. Indian Explosives Manual and
- iv. Fire Protection Manual issued by Tariff Advisory Committee (India).

These safety provisions shall be brought to the notice of all concerned by displaying on a notice board at a prominent place at the work spot. The persons responsible for compliance of code shall be named by the bidder.

To ensure effective enforcement of the rules & regulations relating to safety precautions, the arrangement made by the bidder shall be open to inspection by WAPCOS Limited.

Notwithstanding the above clauses there is nothing in those to exempt the bidder from the operations of any other Act or Rule in force in the Republic of India. All storage, handling & use of flammable liquids shall be under the supervision of qualified persons. First aid arrangements with the degree of hazard and with no. of workers employed shall be maintained in a readily accessible place throughout the whole of working hours.

The bidder shall also provide necessary fencing and lights to protect the public from accident. Fire extinguishers shall be kept by the Contractor at the site of works where there is risk of fire hazard. Adequate washing facilities shall be provided near the place of work.

All accidents, major or minor, must be reported immediately to WAPCOS Ltd and the contractor will provide first aid to the injured person immediately. The injured person shall report to the medical centre along with the 'Injure on Work' form as per appropriate Performa, duly filled in quintuplicate and submit to the Medical Officer.

In case of serious injuries, the contractor shall provide first aid at his own First Aid Station and thereafter the injured person to be taken to the hospital along with the 'Injured on Work' form duly filled in. The contractor shall also report the accident to WAPCOS Ltd.

In case of Fatal Accident, it must be reported immediately to WAPCOS Ltd well as to Police.

Failure to observe the Safety Rules will make the contractor liable to penalty by way of suspension of work and termination of contract.

25.0 Warrantee:

The contractor must ensure that the goods supplied under the contract are new, unused and of most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the contract.

The warrantee period of the complete systems of the Solar PV Power Plants against any sorts of defects initially **will be 12 (twelve) calendar months** from the date of successful commissioning and handing over of the plants to WAPCOS Limited. However the performance guarantee of the PV Module shall be **25 years as per guideline of Ministry of New and Renewable Energy (MNRE)**, Government of India. The contractor shall remain liable to replace any defective parts that may develop in the plant of his own manufacture or that of his sub-contractors or other manufacturer under the conditions provided for by the contract under proper use, and arising solely from faulty design,

materials or workmanship, provided always that such defective parts as are not, repairable at site and are not essential in the meantime to the maintenance in commercial use of the plant are promptly returned to the contractor's works at the expense of the contractor unless otherwise arranged. The contractor will submit Warrantee Certificates of the work & spare parts if any and materials in a **Non-judicial Stamp Paper of value Rs.100/-** (Pro-forma for the same should be approved by WAPCOS Limited) duly indemnified at the time of submission of completion report. If any defect is found within the warrantee period, contractor will be liable to repair or replace the same at his own cost and risk, within three (72 hours) days from the date of complaint lodged by **WAPCOS Limited**.

However, time for repair/ replacement of equipment or any works in case of any major failure will be granted by the Engineer-in Charge considering the type of failure and receiving written prayer from the contractor for the same. But in general the downtime will be 72 hours. If the system is not made operational within granted time, WAPCOS Limited may rectify the same and recover the expenses from Security Deposit or any other payment of the contractor and/or PBG retained by WAPCOS Limited.

26.0 End user Training

The Contractor will arrange for training at site for the end users. The contractor will provide training materials for the training programmed. The training will be the part of contract and no extra cost will be provided for organizing the training programmed.

27.0 Insurance

1. Requirements

Before commencing execution of works, unless stated otherwise in the special conditions of contract, it shall be obligatory for the contractor to obtain at his own cost stipulated insurance cover under the following requirements:

- a) Contractor's all risk and Third Party Cover.
- b) Liability under the workmen's compensation Act, 1923, Minimum Wages Act, 1948 and Contract Labour (Regulation and Abolition) Act, 1970.
- c) Accidents to staff, Engineers, Supervisors and others who are not governed by workmen's compensation Act.
- d) Damage to material, machinery and works due to fire theft etc.
- e) Any other risk to be covered by insurance as may be specified by the employer in the special conditions of contract.

2. Policy in Joint Names of Contractor and Employer

The policy referred to under sub-clause 43(1) above shall be obtained in the joint names of the contractor and the employer and shall inter-alia provide coverage against the following, arising out of or in connection with execution of works, their maintenance and performance of the contract.

- a) Loss of life or injury involving public, employee of the contractor, or that of employer and Engineer, labour etc.
- b) Injury, loss or damage to the works or property belonging to public, government bodies, local authorities, utility organizations, contractors, employer or others.

3. Currency of Policy

The policies shall remain in force throughout the period of execution of the works and

till the expiry of the defect liability period. The contractor shall, whenever called upon, produce to the engineer or his representative the various insurance policies obtained by him as also the rates of premium and the premium paid by him to ensure that the policies indeed continue to be in force. If the contractor fails to effect or keep in force or provide adequate cover in the insurance policies mentioned in the sub clause 46(1) or any other insurance he might be required to effect under the contract, then in such cases, the employer may effect and keep in force any such insurance or further insurance and the cost and expenses incurred by him in this regard shall be deductible from payments due to the contractor or from the contractor's performance security.

SECTION- III

SPECIAL CONDITIONS OF CONTRACT

SECTION-III

SPECIAL CONDITIONS OF CONTRACT

1.0 SPECIAL CONDITIONS OF CONTRACT

The Special Condition of Contract (SCC) shall be followed by the Contractor in addition to the General Condition of Contract (GCC) of tender document. The following General Condition of Contract of this tender are modified/added as detailed below.

In case of any discrepancy between GCC and SCC, the SCC will succeed over GCC.

- **Office Inviting Tender**

Additional Chief Engineer,
WAPCOS Limited
A Government of India Undertaking,
Power Division, 2nd Floor, Plot No. 57,
SKV House, Sector-18,
Gurugram-122015, Haryana
Email: manojkumar-electrical@wapcosindia.com

- **Definitions**

- Owner / WAPCOS Limited means WAPCOS Limited
- Site / Location Means as mentioned in NIT
- Engineer-In-Charge means Addl. Chief Engineer
- Accepting Authority Shall mean WAPCOS Limited.
- Market Rate: Percentage on cost of materials and labour to cover all overheads and profits 15% (Provided that no extra overheads and profits shall be payable on the part(s) of work assigned to other agency(s) by the contractor as per terms of contract.)
- Standard Schedule of Rates

Schedule of Rates (Civil)	CPWD rates and its DSR 2021 edition
Schedule of Rates (Electrical)	CPWD rates and its DSR 2018 edition
- Date of Commencement of work: Within 07 days from the date of issue of Letter of Award (LoA)

- **Clauses of Contract**

<p>Performance Guarantee</p> <p>Time allowed for submission of Performance Guarantee from the date of issue of letter of Award</p> <p>Validity of Performance Guarantee</p> <p>Return of Performance Guarantee</p>	<p>3% of Tendered Value</p> <p>15 days</p> <p>The Performance Guarantee shall be initially valid up to the stipulated date of completion plus 1 year claim period beyond that</p> <p>Soon after the completion & commissioning of works and issuance of the completion certificate</p>
<p>Security Deposit</p> <p>Release of security Deposit</p>	<p>2.5% of Tendered Value</p> <p>Successful Completion of Defect Liability period</p>
<p>Liquidated Damage</p>	<p>Timely completion of the work is very much/strictly essential due to time constraints.</p> <p>0.5% of the total project cost per week. (Maximum up to 10% of the Project Cost)</p>
<p>Time Schedule</p> <p>Number of days from the date of issue of letter of Award for reckoning date of start</p> <p>Stipulated time of completion of project</p>	<p>Within 07 days</p> <p>As Mentioned in NIT</p>
<p>Payment</p>	<ul style="list-style-type: none"> ❖ <u>Advance Payment</u>: 10% of the contract amount will be paid as advance payment against unconditional Bank Guarantee. Advance will be deducted proportionately from each payment until same is fully repaid. ❖ <u>50% of the quoted amount</u> – against supply of all the material as per scope of work which include pre-dispatch inspection, supply of all the design &

	<p>drawings, test reports and other documents as per tender conditions.</p> <ul style="list-style-type: none"> ❖ <u>45% of the quoted amount</u> - against installation, testing, and successfully commissioning of Solar PV plant and other project components and handing over the complete project. ❖ <u>5% of the quoted amount</u> – after completion of 5 years of comprehensive maintenance period.
Defect Liability Period	One year from the date of successful completion of each component of the project in all respect

SECTION- IV

**ADDITIONAL CONDITIONS OF
CONTRACT**

SECTION-IV

ADDITIONAL CONDITIONS OF CONTRACT

- 1.0 The construction work will be commenced by the Contractor only after the approval from the Engineer-In-Charge. The Contractor is required to deploy resources as per the availability of the site. No Claim will be entertained for idle labour, idle machinery, idle technical/no technical staff, idle T&P etc.
- 2.0 All works are to be executed in accordance with the specifications and details of items etc. given with this tender document and approved drawings (if any) by the WAPCOS Limited. MNRE guidelines/IS/BIS/IEC or any other relevant standard as mentioned in tender document is applicable for electrical work.
- 3.0 All materials including Electrical items (Solar PV Modules, PV Array, PV Array Structure, Junction Box, Logger, Interfacing Panel, Kiosk, Energy Meter, Grid Integration Arrangement, DC cables & wires, AC cable, Inverter, Converter, Protection System, Lighting Arrangement, Fire Buckets & Extinguishers and other items as mentioned in Tender document/BOQ) reinforcing steel, cement for concrete work, sanitary & plumbing works, carpentry fittings and shall be procured after approval of brand and make by WAPCOS Limited.
- 4.0 The work shall be inspected by WAPCOS Limited representative from time to time at site as necessary. The Contractor shall provide all facilities for such inspection free of cost. Notwithstanding any inspection of the site, WAPCOS Limited shall have the right to reject any work not conforming to the specification without being liable for any explanation or compensation. The authorized representative of WAPCOS Limited shall have the free access to the work site, contractor site office and store.
- 5.0 During the execution of the work, the representative of WAPCOS Limited found any work not in accordance with the drawings/specifications/instructions/standards, he may order for re-execution of part or whole of the work executed. No extra claims shall be entertained for re-execution or altering of such work.
- 6.0 During the execution of the work, if any, problem arises which is not covered by the specifications, the contractor shall seek necessary clarification and instruction from WAPCOS Limited. Such instruction shall be binding on the contractor and shall be observed in full.
- 7.0 The Contractor shall make his own arrangement for the labour, construction equipment, tools and tackles and construction materials, construction water, office / labour accommodation, water supply, sanitation.
- 8.0 The Contractor shall strictly follow the construction safety rules, regulations and instructions issued from time to time. In absence of any particular reference the Contractor shall refer to the Indian Standard and also the State Government rules and regulations.
- 9.0 No omission or ambiguities in the drawing or in the specifications will relieve the contractor from responsibility for material or completeness of the work.
- 10.0 Materials brought to the site shall not be removed from the site without the written consent of the WAPCOS Limited.
- 11.0 Contractor should provide sufficient purified water for workers employed at site, his technical staff and site staff.

- 12.0 The Contractor shall dispose of all the dismantled materials, debris, garbage, construction waste outside of the campus of the works at his own cost and provide clear and clean site at the time of handing over the works.
- 13.0 The payment of final bill will be made after successful completion and handing over of the works with complete satisfaction of Engineer-In-Charge as mentioned in Terms of payment of tender document.
- 14.0 The cost/rates quoted by the contractor are deemed to be inclusive of site clearance, setting out work, profile, establishment of reference bench mark, spot levels, construction of all safety and protection devices, preparatory works, all testing of materials working during monsoon, working at all depths, height and locations etc. unless specified in the schedule of quantities.

SECTION- V

ANNEXURES

Annexure – I**AGREEMENT**

THIS AGREEMENT IS MADE on this day of 2021 BETWEEN **WAPCOS Limited, A Government of India Undertaking, having its corporate office at 76-C, Sector-18, Gurgaon, Haryana - 122015**, represented by its Name, Designation (hereinafter referred to as the ‘WAPCOS’ or ‘Client’ which expression shall, unless repugnant to the context or meaning thereof, includes its successors and assigns) of one part and **M/s (Name of contractor)**, a company incorporated under the Indian Companies Act, 1956, having its registered office at represented by Name (Designation) (hereinafter referred to as ‘Agency’ which expression shall, unless repugnant to the context or meaning thereof, includes its successors, administrators, liquidators and assigns or legal representatives)

of the other part.

WHEREAS the Client invited NIT for **“Supplying, Installation, Commissioning of 60 KWp Grid Connected Rooftop Solar Power Plant Including 5 Years Comprehensive Maintenance (From 2nd Year) at WAPCOS Corporate Office, Gurugram”** vide NIT No. **WAP/POW/NIT/CSR/MISC/2022/01** dated: **.../03/2022** and the Agency submitted a bid for the same giving rates/amounts accepting the terms and conditions of the NIT document.

AND WHEREAS the said bid submitted by the Agency has been accepted and the Client has awarded the work of **“Supplying, Installation, Commissioning of 60 KWp Grid Connected Rooftop Solar Power Plant Including 5 Years Comprehensive Maintenance (From 2nd Year) at WAPCOS Corporate Office, Gurugram”** vide work order No: and the Agency submitted a signed copy of the work order as a token of acceptance of the same, giving rates/amounts accepting the terms and conditions as stipulated in the work order.

NOW THIS AGREEMENT WITNESSETH as follows:

In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.

In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.

The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein 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.

The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

a) Tender Document

- b) Bidder's Bid
- c) Work Order/Letter of Award (LoA)
- d) Acceptance of LoA

In witness where of the parties thereto have caused this Agreement to be executed the day and year first before written at **2nd Floor, SKV Tower, Plot no.- 57, Sector- 18, Gurugram - 122015, Haryana.**

Signature of the Employer
(with the seal of company and address)
address)

Signature of the Contractor
(with the seal of company and

In the presence of:

Witness

1.

2.

Annexure –II**FORM OF PERFORMANCE GUARANTEE**

WAPCOS Limited
(A Government of India Undertaking)
2nd Floor, SKV Tower,
Plot no.- 57, Sector- 18,
Gurugram-122015, Haryana

In consideration of _____ (Employer's name) (hereinafter referred to as "the Employer") which expression shall, unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to _____ (Contractor's name & address)(hereinafter referred to as "the Contractor" which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) a contract, by issue of Employer's Notification of Award No. _____ dated _____ and the same having been unequivocally accepted by the Contractor, resulting into a contract valued at Rs. _____ (Rupees _____ only) for _____ (name of work) (hereinafter called "the contract") and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire contract equivalent to Rs. _____ (Rupees _____ only) (3 % of the said value of the Contract to the Employer).

We, _____ (name & address of bank) (hereinafter referred to as "the Bank" which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any or, all monies payable by the Contractor to the extent of Rs. _____ (Rupees _____ only) as aforesaid at any time upto _____ without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor or court. Any such demand made by the Employer on the bank shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantee herein contained shall continue to be enforceable till the Employer discharges this guarantee.

We the said Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said contract have been fully paid and its claims satisfied or discharged or till the Employer certifies that the terms and conditions of the said Contract have been fully and properly carried out by the said Contractor and accordingly discharges the guarantee.

The Employer shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee, from, time to time to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor and to exercise the same at any time in any manner and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The bank shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would but for this provision, have the effect of relieving the Bank. The guarantee shall not be affected by a change in the

constitution of the bank or of the employer.

The bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

We The Said Bank do hereby declare that we have absolute and unconditional power to issue this guarantee in your favour under the Memorandum and Articles of Association or such other constitutional documents of the Bank and the undersigned have full power to execute this guarantee under the Power of Attorney/Post Approval Authorization dated _____ of the bank granted to him / us by the Bank. We the said bank do hereby declare and undertake that your claim under the guarantee shall not be affected by any deficiency or other defect in the powers of the bank or its officials and the guarantee shall be deemed to have been issued as if the bank and its officials have all the powers and authorization to give this guarantee on behalf of the bank.

We the said bank do hereby certify the genuineness and appropriateness of the Stamp paper and stamp value used for issuing the guarantee. We the said bank do hereby declare and undertake that your claim under the guarantee shall not be affected by any deficiency or other defect in the stamp paper or its stamp value.

We the said bank do hereby declare that our payments hereunder shall be made to you , free and clear of and without and deduction, reduction on account of any reasons including any and all present and future taxes, levies, charges of withholding whatsoever imposed or collected with respect thereto.

Notwithstanding anything contained hereinabove our liability under this guarantee is restricted to Rs. _____ (Rupees _____ only) and it shall remain in force upto and including _____ and shall be extended from time to time for such period as may be desired by M/s WAPCOS Limited to whom this bank guarantee has been given.

Notwithstanding anything contained herein

- a) Our liability under this guarantee shall not exceed Rs. _____ (Rupees _____ only);
- ii) This bank guarantee shall be valid upto _____; and
- iii) Our liability to make payment shall arise and we are liable to pay the guaranteed amount or any part thereof under this guarantee, only and only if you serve upon us a written claim or demand in terms of the guarantee on or before _____ (indicate a date twelve month after validity of Guarantee) Dated this _____ day of _____ at Gurugram.

Annexure – III

FORMAT FOR AFFIDAVIT

I/We have submitted a bank guarantee for the work (Name of work) Agreement No. _____ Dated _____ from _____ (Name of the Bank with full address) to the WAPCOS Limited, Gurugram with a view to seek exemption from payment of performance guarantee in cash. This Bank guarantee expires on _____. I/We undertake to keep the validity of the bank guarantee intact by getting it extended from time to time at my / our own initiative upto a period of _____ months after the recorded date of completion of the work or as directed by the WAPCOS Limited.

I / We also indemnify the WAPCOS Limited against any losses arising out of non-encasement of the bank guarantee if any.

(Deponent)
Signature of Contractor

Note: The affidavit is to be given by the Executants before a first class Magistrate

Annexure –IV**FORMAT FOR INDEMNITY BOND**

INDEMNITY BOND EXECUTED by me / us on thisDay of2021, I/We having Registered Office at (herein referred as “**OBLIGOR / OBLIGORS**” which expression shall mean and includes my / our successors legal representatives, assigns) do hereby binds myself /ourselves and also our company / firmafter having the power to bind so with the promise and undertaking in favour of the WAPCOS Limited, Gurugram (Hereinafter referred as **OBLIGEE**, which expression shall mean and include it’s legal representative, administrators assigns.

Whereas **OBLIGOR / OBLIGORS** has / have been awarded to execute the job / works under letter no.....dated..... issued by the **OBLIGEE** after having observing necessary formalities, the details of which is described in the schedule given hereunder as per letter mentioned herein-above and whereas the said job / works will be / likely to be done in places covered under Employees’ State Insurance Act (ESI) and / or the Employee Compensation Act, 1923 (W. C. Act) and / or other laws relating to the Labour Management and Welfare.

And whereas according to the condition of the contract the **OBLIGOR / OBLIGORS** is /are under obligation to execute this Indemnity Bond before the commencement of actual execution and **OBLIGOR / OBLIGORS** is/are aware that unless this Indemnity Bond is executed in accordance with the condition of contract before the actual execution in accordance with law the **OBLIGEE** shall have the power to deem that actual work has been started within the meaning of the contract before the execution of this Indemnity Bond.

Now this indenture witnesses that I / we the **OBLIGOR / OBLIGORS** do hereby undertake:-

- 1) THAT the **OBLIGEE** shall not be held responsible for any type of accident which may take place during the course of work undertaken by the **OBLIGOR / OBLIGORS**.
- 2) THAT the **OBLIGOR / OBLIGORS** will take / adopt all safety norms in respect of each and every workmen labour personnel according to the rules or to the satisfaction of the **OBLIGEE** in all cases.
- 3) THAT the **OBLIGOR / OBLIGORS** undertakes/undertake to engage only those labour worker or any other personnel whether skilled or unskilled or any other person whether in technical management or no managerial or any other capacity in the area covered under Employee’ State Insurance Act,1948 who has/have insurance coverage within the meaning of Employees’ State Insurance Act and further undertakes NOT to engage any person in the area covered under Employees State Insurance Act., who does / do not has / have insurance coverage within the meaning of Employees’ State Insurance Act,1948.
- 4) That the **OBLIGOR / OBLIGORS** further undertakes/undertake to engage only those labour, worker, or any other personnel, whether skilled or unskilled, whether in technical, managerial or non-managerial or any other capacity in the area NOT covered under Employees’ State Insurance Act 1948, who has life insurance for the sum assured equivalent to the amount of Compensation under the Employees Compensation Act in case of accidental death or inquiry and such insurance has been effected by the **OBLIGOR / OBLIGORS**.
- 5) THAT the **OBLIGOR / OBLIGORS** undertakes / undertake to indemnify and keep harmless the **OBLIGEE** from all claims, action, proceedings and of risk, damage, danger to any person whether belonging to / or not belonging to **OBLIGOR / OBLIGORS**.
- 6) THAT the **OBLIGOR / OBLIGORS** shall keep harmless the **OBLIGEE** from all claims, compensation, damages, any proceedings in respect of any of its employee / workmen under the Employee Compensation Act. Act or any other laws for the time being in force.
- 7) THAT , if during the course of execution of work as stated in the letter mentioned hereinabove issued by the **OBLIGEE**, it is found that the **OBLIGOR / OBLIGORS** has/have not complied with

guidelines/formalities within the meaning of Employees’ State Insurance Act or Employee Compensation Act or any other laws relating to the Labour Welfare for the time being in force, and also has not observed the safety norms in accordance with the law to the satisfaction of the OBLIGEE, the OBLIGEE shall have the right to stop the execution of work / job and the period of such stoppage shall continue till adequate safety and other compliance mentioned hereinabove under the labour welfare legislation have been observed and such period of stoppage shall not be taken into account for the calculation of the total period of completion of work for which the OBLIGOR / OBLIGORS is responsible to complete the work / job and it will be deemed that discontinuance was due to default of OBLIGOR / OBLIGORS.

- 8) THAT, if at any time, due to exigency, the OBLIGEE i.e. the WAPCOS Limited, becomes liable to pay any such compensation mentioned hereinabove, whether on failure of the OBLIGOR / OBLIGORS or for any other reason, the OBLIGEE shall have the right to recover the said amount from any amount receivable by OBLIGOR / OBLIGORS or any bank guarantee deposited or anything payable whether in connection with this contract or other contract by the OBLIGEE to the OBLIGOR / OBLIGORS.
- 9) THAT the OBLIGOR / OBLIGATOR is / are aware and accept that for the persistent or repeated violation of any condition mentioned in this Indemnity Bond, the OBLIGEE shall have right to terminate the contract of work issued by the OBLIGEE to OBLIGOR/ OBLIGATOR.

SIGNED AND DELIVERED BY THE OBLIGOR / OBLIGORS

Signature
.....

WITNESS:

1) Name, Designation

Signature
.....

2) Name, Designation

Signature
.....

SECTION- VI

FORMS

FORM-1

LETTER OF TRANSMITTAL FOR TECHNICAL BID
(On Bidder Original Letter Head)

To
WAPCOS Limited
(A Government of India Undertaking)
2nd Floor, SKV Tower,
Plot no.- 57, Sector- 18,
Gurugram-122015, Haryana
Email: manojkumar-electrical@wapcosindia.com

Subject: Submission of bids for (Name of the Work)

Sir,

Having examined the details given in tender document for the above work, I/we hereby submit the relevant information.

1. I/we hereby certify that all the statement made and information supplied in the enclosed Forms A to H and accompanying statement are true and correct.
2. I/we have furnished all information and details necessary for eligibility and have no further pertinent information to supply.
3. I/we submit the requisite certified solvency certificate and authorize the WAPCOS Ltd. to approach the Bank issuing the solvency certificate to confirm the correctness thereof. I/we also authorize WAPCOS Ltd. to approach individuals, employers, firms and corporation to verify our competence and general reputation.
4. I/we submit the following certificates in support of our suitability, technical knowledge and capability for having successfully completed the following eligible similar works:

Name of work	Certificate from

Certificate:

It is certified that the information given in the enclosed eligibility bid are correct. It is also certified that I/we shall be liable to be debarred, disqualified/ cancellation of enlistment in case any information furnished by me/us found to be incorrect.

Enclosures:

Seal of bidder

Date of submission: Signature(s) of Bidder(s).

FORM-A**FINANCIAL INFORMATION****[To be submitted on Original Letter Head of Chartered Accountant]**

1. Financial Analysis: Details to be furnished duly supported by figures in balance sheet/ profit & loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached). Turnover, profit, net worth certificates must be certified by the statutory auditor of the firm/company. Any such certificate must carry the UDIN (Unique Document Identification Number)

Financial Years	Gross Annual turnover on construction works (in Rs.)	Profit/Loss (After Tax) (in Rs.)
2016-2017		
2017-2018		
2018-2019		
2019-2020		
2020-2021		

2. Financial arrangements for carrying out the proposed work: It is hereby declared that -----
----- (Name of firm with address) has enough financial resources to execute the proposed work.

**Signature of Chartered Accountant
(Date & Seal)**

FORM- B**STRUCTURE & ORGANISATION**

Sl. No.	Particulars	Details Submitted by Bidder
1.	Name & address of the bidder	
2.	Telephone no./Telex no./Fax no.	
3.	Legal status of the bidder (attach copies of original document defining the legal status) (a) An Individual (b) A proprietary firm (c) A firm in partnership (d) A limited company or Corporation	
4.	Particulars of registration with various Government Bodies (attach attested photocopy)	
	Organization/Place of Registration 1. 2. 3.	Registration No.
5.	Names and titles of Directors & Officers with designation to be concerned with this work.	
6.	Designation of individuals authorized to act for the organization	
7.	Has the bidder or any constituent partner in case of partnership firm Limited Company/ Joint Venture, ever been convicted by the court of law? If so, give details.	
8.	Any other information considered necessary but not included above.	

Signature of Bidder(s)

FORM-C

FORMAT FOR NO-CONVICTION CERTIFICATE

[To be submitted on Bidder's Original Letter Head]

Subject: No-Conviction Certificate for ----- (Name of the work)

This is to certify that _____ (Name of the organization), having registered office at _____ (Address of the registered office) has never been blacklisted or restricted to apply for any such activities by any Central / State Government Department or Court of law anywhere in the country.

This is also to certify that M/s _____ (Name of the organization), is not involved in any form of Corrupt and Fraudulent Practices in past and will never be involved in future.

Yours faithfully,

Date: _____ (Signature, name and designation of the Authorized signatory)

Place: _____ **Name and seal of Bidder**

FORM-D**FORMAT FOR UNDERSTANDING THE WORK SITE**

[To be submitted on Bidder's Original Letter Head]

To
 WAPCOS Limited
 (A Government of India Undertaking)
 2nd Floor, SKV Tower,
 Plot no.- 57, Sector- 18,
 Gurugram-122015, Haryana
 Email: manojkumar-electrical@wapcosindia.com

Subject: Undertaking of the Site Visit for --- (Name of the work)

Sir,

I/we hereby certify that I/we have examined & inspected the site & its surrounding satisfactorily, where the project is to be executed as per the scope of works. I/ We are well aware about the following

- Location of the proposed building and its allied works.
- Site clearance and no cutting off the matured trees.
- Nature of the ground & sub-soil of the site and accessibility to the site.
- Existing surrounding road level to finalize plinth beam level as per standard norms.
- Location of Existing Sewer line & Water pipe line network to connect the proposed building and allied works to make the building functional.
- Location of existing Electric Sub-Station to supply the electricity for the proposed building and allied works to make the building functional.

I / We hereby submit our BID considering above all facts gathered during site visit and each & every aspect have been considered in the Quoted cost of the work. I / We hereby confirm that no extra/additional cost shall be claimed on above aspects

Yours faithfully,

Date:

(Signature, name and designation
of the Authorized signatory)

Place:

Name and seal of Bidder

FORM-E

FORMAT FOR NO DEVIATION CERTIFICATE
[To be submitted on Bidder's Original Letter Head]

To
WAPCOS Limited
(A Government of India Undertaking)
2nd Floor, SKV Tower,
Plot no.- 57, Sector- 18,
Gurugram-122015, Haryana
Email: manojkumar-electrical@wapcosindia.com

Subject: No Deviation Certificate for----- (name of Work)

Dear Sir,

With reference to above this is to confirm that as per Tender conditions we have visited site before submission of our Offer and noted the job content and site condition etc. We also confirm that we have not changed/modified the above tender document and in case of observance of the same at any stage it shall be treated as null and void.

We hereby also confirm that we have not taken any deviation from Tender Clause together with other reference as enumerated in the above referred Notice Inviting Tender and we hereby convey our unconditional acceptance to all terms & conditions as stipulated in the Tender Document.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null and void.

Yours faithfully,

Date: _____ (Signature, name and
designations of the Authorized signatory)

Place: _____ **Name and seal of
Bidder**

FORM-F

FORMAT FOR INTEGRITY PACT
[To be submitted on Bidder's Original Letter Head]

To
WAPCOS Limited
(A Government of India Undertaking)
2nd Floor, SKV Tower,
Plot no.- 57, Sector- 18,
Gurugram-122015, Haryana
Email: manojkumar-electrical@wapcosindia.com

Sub: Integrity Pact for ----- (Name of Work)

Dear Sir,

I/We acknowledge that WAPCOS Limited is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document at **Enclosure-I**.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that **THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE** of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by WAPCOS Limited. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, WAPCOS shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully,

Date: _____ (Signature, name and designation of the Authorized signatory)

Place: _____ **Name and seal of Bidder**

Enclosure-I

INTEGRITY AGREEMENT

This Integrity Agreement is made at on this..... day of 20.....

BETWEEN

WAPCOS Limited, Gurugram (Hereinafter referred as the ‘**Client**’, which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....through.....
(Name and Address of the Individual/firm/Company)

..... (Hereinafter referred to as the “**Bidder/Contractor**”
(Details of duly authorized signatory)

and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Client has floated the Tender (NIT No.) (hereinafter referred to as “Tender/Bid”) and intends to award, under laid down organizational procedure, contract for..... (Name of work) hereinafter referred to as the “Contract”.

AND WHEREAS the Client values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as “Integrity Pact” or “Pact”), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:-

Article 1: Commitment of the Client

1. The Client commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - a. No employee of the Client, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - b. The Client will, during the Tender process, treat all Bidder(s) with equity and reason. The Client will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

- c. The Client shall endeavor to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
2. If the Client obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Client will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

1. It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the WAPCOS Limited all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
2. The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
 - a. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Client's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
 - b. The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
 - c. The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Client as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - d. The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
 - e. The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
3. The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
4. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or

submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the WAPCOS interests.

5. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Client under law or the Contract or its established policies and laid down procedures, the Client shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/Contractor accepts and undertakes to respect and uphold the Client's absolute right:

1. If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Client after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Client. Such exclusion may be forever or for a limited period as decided by the Client.
2. Forfeiture of Performance Guarantee/Security Deposit: If the Client has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Client apart from exercising any legal rights that may have accrued to the Client, may in its considered opinion forfeit the entire amount of Performance Guarantee and Security Deposit of the Bidder/Contractor.
3. Criminal Liability: If the Client obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Client has substantive suspicion in this regard, the Client will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

1. The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Client.
3. If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Client may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

1. The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a

commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/sub-vendors.

2. The Client will enter into Pacts on identical terms as this one with all Bidders and Contractors.
3. The Client will disqualify Bidders, who do not submit, the duly signed Pact between the Client and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6: Duration of the Pact

1. This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.
2. If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, WAPCOS Limited.

Article 7: Other Provisions

1. This Pact is subject to Indian Law, place of performance and jurisdiction is the Head quarters of the Client, who has floated the Tender.
2. Changes and supplements need to be made in writing. Side agreements have not been made.
3. If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
4. Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
5. It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Client in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

Article 8: Legal and Prior Rights

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Client)

.....

(For and on behalf of Bidder/Contractor)

WITNESSES:

1.....
(Signature, name and address)

2.....
(Signature, name and address)

Place:

Dated:

FORM-G

**FORMAT FOR LITIGATION HISTORY, LIQUIDATED DAMAGES,
DISQUALIFICATION**

[To be submitted on Bidder's Original Letter Head]

To
WAPCOS Limited
(A Government of India Undertaking)
2nd Floor, SKV Tower,
Plot no.- 57, Sector- 18,
Gurugram-122015, Haryana
Email: manojkumar-electrical@wapcosindia.com

**Subject: Litigation History, Liquidated Damages, Disqualification for -----
(Name of Work)**

It is hereby declared that our firm (Name of firm with address-----) neither disqualified, nor have any Litigation history and no Liquidated Damage imposed on the firm by any Department.

Yours faithfully,

Date: _____ (Signature, name and
designation of the Authorized signatory)

Place: _____ **Name and seal of Bidder**

FORM-H**DETAILS OF SIMILAR COMPLETED WORKS DURING THE LAST 7 (SEVEN) YEARS**

Sl No .	Name of The work & location	Owner or sponsoring organization	Cost of Work (in Crores)	Date of Commencement as per Contract	Stipulated Date of Completion	Actual Date of Completion	Litigation/ Arbitration cases which are over and Litigation/Arbitration cases pending/ in progress with details	Name & address/ telephone number of Executive Engineer/ Project Manager or equivalent to whom reference shall be made	Remark / Reasons for delay and compensation charged if any
1	2	3	4	6	7	8	9	10	11

(Signature of Bidders)

FORM-I

FORMAT FOR AVAILABILITY OF KEY PERSONNEL
 [To be submitted on Bidder's Original Letter Head]

To
 WAPCOS Limited
 (A Government of India Undertaking)
 2nd Floor, SKV Tower,
 Plot no.- 57, Sector- 18,
 Gurugram-122015, Haryana
 Email: manojkumar-electrical@wapcosindia.com

Subject: Availability of Key Personnel for ----- (Name of Work)

Qualification and experience of Key Personnel proposed to be deployed for execution of the Contract.

Sl. No.	Name	Job role for this Project	Designation	Qualification	Total Experience	Working with the Bidder since

Date:

Place:

Name and seal of Bidder

SECTION– VII

TECHNICAL SPECIFICATION

SECTION – VII

TECHNICAL SPECIFICATIONS

A. Outline of the Scheme of the Project:

1. The Work will be executed strictly in accordance with the relevant IEC/equivalent BIS Standards/MNRE guidelines/CPWD/DSR specification corrected up to date at the time of tenders unless specified to contrary. If the items not covered in Building Manual or IS-specifications/BIS specification or District specification, sound engineering practice as determined by the Engineer-in-charge should be followed.
2. Only BIS marked materials duly approved by the WAPCOS Limited will be used in the work. Non BIS marked materials may be permitted by the WAPCOS Limited only when BIS marked materials are not manufactured and not available in the market.
3. Cement shall be of 43 grade Ordinary Portland Cement (conforming to IS:8112), Portland Pozzolona Cement (conforming to IS:1489: part -I) as required in the work, from reputed manufacturers of cement such as ACC, Ultrateck, Ambuja, Jaypee Cement, and/or from any other reputed cement manufacturer.
4. Steel reinforcement shall be ISI marked TMT bars of various grades from the steel manufacturers such as SAIL, TATA steel ltd. SRMB Steel, RINI, Jindal Steel etc.
5. Measurement of work will be done as per standard/specification.
6. The Contractor shall not be entitled to any payments on account of work done till he signs the agreement and the same are accepted by the competent authority.
7. Actual quantities of completed and accepted work shall only be paid.
8. No claim shall be entertained on account of increase in price of material and wages of labour due to any cause what so ever.
9. The Engineer-In-Charge reserves the right to take away any item of work or any part thereof at any time during the currency of work and re-allot to any other agency with due notice to the contractor without liability of any kind or payment of any compensation.
10. The contractor will be responsible for any and all losses of material damages done to unfinished works as result of act of God. WAPCOS Limited will not be responsible for any compensation as a result of such damages or loss to the contractor and the contractor shall be liable to set right such damages at his own cost the satisfaction of the Engineer-In-Charge.
11. Nothing extra will be paid to the contractor for any lead or lift unless otherwise specified for any material required directly or indirectly under the contract.
12. Nothing extra will be paid to the contractor for diverting water in the channels or streams if it becomes necessary for the execution and completion of the work.
13. Amount of the work can be increased or decreased due to any item omitted and substituted in accordance with the requirement of the WAPCOS Limited. And no claim on this account shall be entertained.
14. The Contractor shall be responsible for providing to the entire satisfaction of the Engineer-In-Charge. at his own expenses for the following amenities for all the labour

employed by him:-

- i) Suitable temporary hutting accommodation.
- ii) Trench latrines, bathing enclosures, platforms separately for men and women and their regular cleanliness.
- iii) Clean drinking water.

15. In event of his failure, the cost thereof shall be recovered from the contractor. Any dispute regarding above points shall be settled by the Engineer-In-Charge and his decision shall be final.
16. For safe custody of materials and watch and ward thereof and proper double lock arrangement, the contractor shall be bound to follow the instruction of the Engineer-In-Charge.
17. Error or omission, if any in the nomenclature rate or unit of the items or work shall be corrected as per current CPWD schedule of Rates.
18. Materials and testing of materials for quality:
The materials shall be subject to inspection and approval of the Engineer-In-Charge. The contractor shall be required to get necessary tests carried out of materials / work from an approved laboratory.
19. The PV array shall be installed at the suitable space of available roof area at WAPCOS Corporate Office, Gurugram. Capacity of solar power plant shall be of 60 KWp or more as calculated based on the available roof area at project site.
20. The power generated from PV array shall be fed to the MPPT Tracker of Three Phase Grid-Tied Solar String Inverters. The capacity & nos. of Inverters shall be installed as per design subject to availability of adequate space. Each MPPT Trackers of the inverters shall be protected with Type-II Surge Protection Device (SPD) installed at Array Junction Box. String fuse of 1.5 times of ISC rating or as per design, 1000 V shall be provided with each PV String.
21. The Array Junction Boxes, Grid-tied Inverters, Inverter Interfacing Panel etc. shall be installed in a suitable kiosk with proper safety and locking arrangement. The size of the kiosk shall be as per individual site requirement and should be well ventilated for heat dissipation.
22. Output from the Grid-tied Solar String Inverter shall be fed to the supply mains of the consumer (connected with grid) through Inverter Interfacing Panel installed near the inverter and through 4 Pole MCB of suitable current rating installed near the Grid Coupling Point.
23. The outgoing side of the Inverter Interfacing Panel shall be protected with Type-II Surge Protection Device (SPD).
24. Unidirectional 3-Phase energy meter (Export Import Energy meter - Net Meter) of 5-30 A/20-100 A current rating or as applicable shall be provided at the output feeder of Inverter Interfacing Panel to monitor the Solar PV Generation. The Meters shall have to be provided as per Standard Specifications of WAPCOS Limited/Concerned Discom/Grid interfacing authority. Sample testing will be done at Manufacturers factory for issuance of Dispatch Instruction subject to acceptance or at Govt. Laboratory or Govt. approved Testing Laboratory for installation permission as mentioned in tender document.

25. DC and AC Earthing would be separate. Design of suitable site specific Earthing System (equipment and body earthing) with Lightning Arrestors shall have to be installed as per approved design.
26. Safety Sign as per relevant Indian Standard and Project Information Signage and Schematic Diagram as per approved design from WAPCOS Limited shall be installed at site.
27. Necessary cleaning arrangement (plumbing system, hosepipe, wiper, bucket, mug etc.) shall be provided. Cleaning of Solar PV Modules shall be done by the contractor at-least once in a fortnight. For this, Contractor has to provide a chart where records of the same are maintained with authorised signature from beneficiary/client.
28. The installed Solar PV power plant should be site specific, Robust, Economic and Efficient.

B. Submission of the Design Report & Drawings:

The contractor shall submit site specific Design Report and Drawings for according approval of from WAPCOS Limited. The Design Report shall contain but not limited the following details:

- a) Roof plan indicating the suitable area for installation of solar plant, dimension, north-south direction, Latitude & Longitude and any other relevant information for project site (DC Office).
- b) The structural condition of the roof / type of roof / type of roof treatment (if any).
- c) All technical particulars along with Single Line Diagram (SLD).
- d) Module Mounting Structure & Foundation Details with Drawings and Design.
- e) Bill of Materials (BOM) and Detailed Time Schedule.
- f) Type Test Report and all other relevant certificates for various equipments proposed to be used in the plants.

C. Minimum Guaranteed Generation:

The contractor shall submit a declaration for Minimum Guaranteed Generation for site of installable capacity i.e., 60 kWp (as per availability of roof area) along with their Technical Bid. As the Solar PV Power Plants will be Grid-connected type, Grid Outage will be considered for calculating minimum guaranteed generation. For accounting grid outage, operation time of the plant will be considered as 6 hours (9:30 am to 3:30 pm) every day all over the year. In case of grid outage during that period, Minimum Guaranteed Generation will be relaxed proportionately. No relaxation in minimum guaranteed generation will be considered for any other loss occurred in the system. Failing to generate the minimum guaranteed generation, penalty as mentioned in of this tender document will be imposed to the contractor.

D. System/Equipment Details:

1. SOLAR PHOTOVOLTAIC MODULES

Standards:

The PV modules must conform to the latest edition of the following IEC/equivalent BIS Standards for PV module design qualification and type approval:

Sl. No.	Standard	Description
1.	IEC: 61215/IS: 14286	Crystalline silicon terrestrial photovoltaic modules - Design qualification and type approval.
2.	IEC: 61730 – Part 1	Photovoltaic (PV) module safety qualification - Requirements for construction.
3.	IEC: 61730 – Part 2	Photovoltaic (PV) module safety qualification - Requirements for testing.
4.	IEC: 61701/IS: 61701	Salt Mist Corrosion Testing of the PV Modules.
5.	IEC: 62804	Test method for detection of Potential Induced Degradation of photovoltaic (PV) modules.
6.	EC 62579 Part – I, 2015	PV Module Transportation Testing, Transportation & Shipping of Module Package Units.

The proposed PV Module must have the Test Certificate issued from NABL/ Internationally accredited test laboratories of Ministry of New and Renewable Energy, Government of India. Type test certificates issued from IEC accredited laboratories shall be acceptable.

The manufacturers should get their samples tested as per the new format/procedure which are effective from 1st April 2013 onwards as per MNRE, Govt. of India Guideline and subsequent Revisions/ Modifications, if any.

Identification and Traceability:

Each PV module must use a RF identification tag (RFID), which must contain the following information:

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

RFID shall be placed inside or outside of each solar module laminate and must be capable to withstand environmental conditions as per latest Guideline of MNRE, Govt. of India. A permanent sticker mentioning the Project/Scheme name, LOA number and date shall have to be fixed on each PV module.

Authorized Testing Laboratories/Centres:

PV modules must qualify (test reports / certificate from IEC / NABL accredited laboratory should be enclosed) as per the relevant IEC standard. Additionally the performance of PV modules at STC conditions must be tested and approved by one of the IEC / NABL

Accredited Testing Laboratories including Solar Energy Centre (SEC). However, qualification certificate from IEC/NABL accredited laboratory as per relevant standard for any of the higher wattage (greater than 50 kWp) regular module should be accompanied with the SEC report/certificate.

Warranty:

- **Material Warranty:** The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (05) years from the date of sale to the original customer.
- i. Defects and/or failures due to manufacturing
 - ii. Defects and/or failures due to quality of materials
 - iii. Non conformity to specifications due to faulty manufacturing and/or inspection processes.

If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owner's sole option. The contractor shall be responsible to contact with the contractor if any of the above mentioned cases occurred.

Performance Warranty: The manufacturer should warrant the peak watt output capacity of Solar Module(s) for at least 90% of its rated power after initial 10 years & 80% of its rated power after 25 years from completion of date of final commissioning. The contractor shall collect the Warranty Certificate for performance of the modules from the manufacturer and submit the same to WAPCOS Limited prior to delivery of the products to the respective sites. If, Module(s) fail(s) to exhibit such power output in prescribed time span, the Contractor will bound to either deliver additional PV Module(s) to replace the missing power output with no change in area of site used or replace the PV Module(s) with no extra cost claimed at Owner's sole option.

Manufacturer of proposed PV modules must have the ISO 9001:2008 or ISO 14001 Certification for their manufacturing unit for their said manufacturing item.

Note: Only indigenously manufactured PV modules should be used in Grid Connected Rooftop Solar PV Power Plants under this scheme. However, other imported components can be used, subject to adequate disclosure and compliance to specified quality norms and standards.

Specification:

Sl. No.	Item	Description
1.	Type	Crystalline Silicon – Mono
2.	Efficiency of module	Minimum 15 % at STC
3.	Cell efficiency	Minimum 17 % at STC
4.	Fill Factor	Minimum 74 %
5.	No. of cells per module	60/72
6.	Module Frame	Non-corrosive and electrolytically compatible with the structural material, preferably anodized Al. Anodizing Thickness shall be 15 micron or more.
7.	Termination box	Thermo-plastic, IP 65, UV resistant
8.	Blocking diodes	Schottky type

9.	Bypass Diode	Yes, as required
10.	Peak Power Rating of PV module	Shall not be less than 300 Wp
11.	Power tolerance	upto +5 %
12.	Temperature co-efficient of power	Less than - 0.45% / °C
13.	Glass	High transmittance glass
14.	RF Identification tag for each solar module	Shall be provided inside or outside the module and must be able to withstand environmental conditions and last the lifetime of the solar module as per MNRE Norms.

Other General Requirements:

- i. The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
- ii. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of bypass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP 65 rated.

Testing & Approval:

- The contractor shall submit Design Report which must contain but not limited to the following details of the solar modules:
 - Detailed specifications and Necessary drawings;
 - Type test reports etc.
- Joint inspections and testing will be done by WAPCOS Limited and the authorized representatives of the contractor at the manufacturer's workshop on regular basis for quality assurance and testing. Acceptance Tests as per relevant Indian Standard/ IEC Standard shall be carried out at the module manufacturer's workshop. Following tests as per relevant Indian Standard shall be carried out on certain number of modules from a lot (decided by WAPCOS Limited) as acceptance tests of Solar PV Modules:
 - Visual Inspection
 - Performance Test of the modules at STC and NOCT with Sun Simulator of Class B or better as per Indian Standard
 - Performance Test of the modules at low irradiance (200 W/m) with Sun Simulator of Class B or better as per Indian Standard
 - Dielectric withstand test
 - Continuity and leakage current test
 - Insulation Resistant test
 - Wet leakage current test
 - Mechanical load test
 - Any other test as desired by WAPCOS Limited

- Prior to the delivery of the product, the contractor shall submit but not limited to the following documents:
 - Guarantees
 - Instructions for installation and operation, manual
 - Test reports for routine tests and acceptance tests etc.
- The contractor shall deliver the product to the site only after receipt of despatch order in writing from WAPCOS Limited.

2. PV ARRAY

Specification:

Sl. No.	Item	Description
1.	Nominal Capacity	Minimum 5/10/15/20 kWp (as per availability of site area).
2.	Type of Solar Modules	For installation of Solar PV Array in a site, modules having same capacity, rating / specification shall be used. Mixing of modules having different capacity, rating/specification will not be allowed.
3.	PV Module interconnection	MC - 4 / Tyco connector
4.	PV Module interconnection cable and array cable	PV 1-F standard / NEC standard "USE - 2 or RHW - 2" type.
5.	PV array String Voltage	Compatible with the MPPT channel of inverter

3. PV ARRAY

Standards:

Sl. No.	Standard	Description
1.	IS 800	General constructions in steel- Code of Practice.
2.	S 456	Plain & reinforced Concrete- Code of Practice.
3.	IS 2062	Hot rolled medium and high tensile structural steel specification.
4.	IS 875 Part II	Code of practice for design wind loads for building and structures
5.	IS 4759	hot-dip zinc coatings on structural steel and other allied products - specification

Designing of Module Mounting Structure (MMS):

During Structural design following points must be include but not limited to the following:

- a. There must be sufficient gaps between the rows of the panels and all precautions to be taken to avoid any shading on the panels. Minimum 300 mm clearance should be maintained in between roof and module.
- b. The module alignment and tilt angle shall be calculated to provide the maximum annual energy output. This shall be decided based on the location of array installation.
- c. The structure shall be designed to allow easy replacement of any module and shall be in line with site requirement.

- d. The mounting structure shall be designed for simple mechanical and electrical installation. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the base properly.
- e. The mounting steel structure shall be as per latest BIS 2062 (amended up to date).
- f. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels at the same time.
- g. All fasteners shall be of stainless steel of grade SS 316.
- h. The support structure & foundation shall be so designed to withstand wind load of the location as given in relevant Indian code for wind (IS 875 Part III, latest edition).
- i. IS 800-2007 shall be followed for structural design. Accordingly STAAD output of the design is to be submitted.
- j. Galvanization of the structural members shall conform to IS: 4759. The quality of zinc shall conform to IS: 209 and IS: 2629. All galvanized materials shall withstand tests as per IS: 2633. Arrangement of testing shall be made by the contractor.
- k. The bidder/manufacturer shall specify installation details of the PV modules and the support structures with appropriate diagram and drawings.
- l. All structures including any metallic part thereof must be protected against any corrosion. The structures must also be electrolytically compatible with the materials used in the module frame, fasteners, fixtures, nuts, bolts or any similar nature of metallic components whichever are required to complete the job.
- m. Foundation concrete of the structure should be of grade M20 and the mixture should not be leaner than 1:1.5:3. Neat cement finish should be made over the foundation concrete.
- n. Foundation should be strong enough to withstand the uplift force due to wind load and the same should be shown in design calculations.
- o. Detailed engineering, drawings, specification and instructions for civil and other related structural works will be prepared by the Contractor/ architectural firm for erection and installation of the PV Array structure. Before execution of the same, Prior approval is to be taken from WAPCOS Limited.
- p. Mounting structure shall be designed to satisfy all the safety requirement of the roof. For any special case or any different type of roof, the contractor may provide different type of mounting structure after getting approval from WAPCOS Limited.
- q. The structural condition of the roof / type of roof / type of roof treatment (if any) should be precisely assessed by the contractor during site surveying and that should be clearly mentioned in the Design Report and accordingly type of structure & foundation should be selected.
- r. Safety of the roof structure should be properly maintained all through the work. If any damages of the structure which may occur during installation of the Solar PV Systems, necessary rectification shall have to be done by the contractor immediately at his own cost.
- s. The footing base of the structure should be painted by good quality (IS approved) water proofing bituminous paint.

4. PV ARRAY JUNCTION BOX (AJB)

Array Junction Box (AJB) shall have to be used for termination of string prior connecting array with each inverter. The string combiner box / array junction box shall be dust, vermin, and water proof and made of Polycarbonate Plastic. The number of PV Array Junction Box will be as per plant configuration.

Standards:

The Array Junction Boxes shall conform to the latest edition of following Standards except where specified otherwise in this specification:

Sl. No.	Standard	Description
1.	IS 13703: Part 1	Low voltage fuses for voltage not exceeding 1000V AC or 500V DC: General Requirements
2.	IEC 60269: Part 4 /IS 13703: Part 4	Low-voltage fuses: Supplementary requirements for fuse-links for the protection of semiconductor devices
3.	IEC 60269-4: Part 6	Low-voltage fuses: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
4.	IEC 62262:2002	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)
5.	IEC 60068-72	Environmental testing of electronic equipment
6.	IEC 60695-2-10:2013	Glow-wire apparatus and common test procedure
7.	IEC 60695-2-13	Glow-wire ignition temperature (GWIT) test method for materials
8.	IEC 61643	Surge protective devices connected to low-voltage power stems - Requirements and test methods
9.	IEC 60364	Protection against over voltages of atmospheric origin or due to switching

Equipment meeting with other authoritative standards which ensure an equal or better quality is also acceptable.

Specification:

Sl. No.	Item	Desired Data
1.	Enclosure	
	Degree of Protection	IP 65 with UV Protected
	Material	Polycarbonate
	Withstanding voltage	1000 V DC
	Withstanding Temperature	100°C
	Accessories mounting arrangement	DIN Rail
	Number of Strings entry	As may be required
	Approved Make	Hensell/Spelsberg/ABB/Ensto or equivalent make (as per acceptability of WAPCOS Limited)
2.	Cable Entry and Exit	
	Position	Bottom at cable entry and exit
	Cable Entry and Exit connector type	MC 4 / Tyco Connector (PV Array String cable). All wires / cables must be terminated through cable lugs.
	Cable gland	Input & output termination shall be made through suitable cable glands.
3.	Surge Protecting Device (SPD)	

	Type	DC
	Approve Make	OBO Bettermann / Dehn / Citel / ABB or equivalent make (as per acceptability of WAPCOS Limited)
	Protection class	Type B + C
	Rating	1000 V, 20 kA
	Number of set	As may be required as per string Design
4.	Fuse with fuse holder	
	Position	+ve and -ve terminal for each series string
	Type	Glass fuse, for PV Use only
	Rating	Current: Minimum 1.5 times of the Isc Rating of the string Voltage: Minimum 1000 V DC
	Approved make	Cooper Bussman/FerazzShamut or equivalent make (as per acceptability of WAPCOS Limited)
5.	Earthing	
	Earthing Provision	Terminal blocks will have to be provided
6.	Terminals, lugs and bus bar	
	Material	Tinned copper

5. GRID CONNECTED INVERTER

The power generated from PV array shall be fed to the MPPT Tracker of Three Phase Grid-Tied Solar String Inverters as per requirement through Array Junction Box (AJB).

Standards:

Sl. No.	Standard	Description
1.	IEC/IS: 61683	Photovoltaic systems – Power Conditioners – Procedure for measuring efficiency
2.	IEC 62093	Balance-of-system components for photovoltaic systems – Design qualification natural environments
3.	IEC 60068	Environmental Testing
4.	IEC 62116	Islanding Prevention Measurement
5.	IEC 61727	Interfacing with utility grid

The inverters should have CE conformity according to LVD (Low Voltage Directive) and EMC (Electro Magnetic Compatibility) Directive for safety purpose. Type test certificate issuing authorities should be any NABL/IEC Accredited Testing Laboratories or MNRE approved test centres. Equipment meeting with other authoritative standards which ensure an equal or better quality is also acceptable.

Specification:

Desired specification of each inverter shall include but not limited to the following:

Sl. No.	Item	Desired Data
1.	Type	Grid connected String Inverter

2.	Input (DC)	
	PV array connectivity capacity	As per site requirement
	MPPT Voltage range	Compatible with the array voltage
	Number of MPPT Channel	2 Nos. (Minimum)
3.	Output (AC)	
	Nominal AC Power output	As per requirement
	Phase	
	Adjustable AC voltage range	The inverters shall continue generation for grid voltage variation from + 10 % to at least - 20 % of the rated system voltage.
	Frequency range	The inverters shall continue generation for grid frequency variation from + 5 % to – 5 % of the rated system frequency.
	Total Harmonic Disorder (THD)	The limits on voltage harmonics are 5 % for THD and 3 % for any single harmonic. Current harmonics for various power output conditions shall be limited as per the values provided in relevant Indian Standard.
	Switching	H.F. transformer / transformer less
4.	General Electric Data	
	Maximum Efficiency	95 % (minimum)
	Night mode consumption	Less than 10 W
5.	Protection	
	DC Side	Reverse-polarity, reverse current to PV array, over voltage, under voltage, over current
	AC side	Over voltage and under voltage, over current, over and under grid frequency, ground fault
	Isolation Switch	PV array Isolation switch (integrated)
	Earthing	Provision of Body Earthing
6.	LCD Display Patameters	
	General	Unit Temperature
	DC	Voltage, Current, Power
	On grid connected mode	Line status, Grid voltage, Grid frequency, Export Power, Cumulative Export Energy
7.	Switching Device	IGBT/MOSFETS
8.	Control	Microprocessor/DSP
9.	Interface (Communication Protocol)	Suitable port must be provided in the inverter for onsite dumping data from the memory, web based remote monitoring system.
	Web monitoring	Matched with the monitoring and data logging system installed at site. DC voltage and current at each string, AC voltage, Current and Power should be at least monitored.
10.	Storage of Data	At least for 1 year. Separate data logger may be provided to meet the criteria.
11.	Mechanical Data	
	Protection Class	IP 65 or higher
	Cooling	Natural / forced air cooling
12.	Make	SMA/KACO/DELTA/ABB/POWERONE

		MICROSYSTEM or equivalent make (as per acceptability of WAPCOS Limited.)
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Testing & Approval:

- The contractor shall submit Design Report which must contain but not limited to the following details of the solar modules:
 - Detailed specifications and Necessary drawings;
 - Type test reports etc.
- Joint inspections and testing will be done by WAPCOS Limited and the authorized representatives of the contractor at the manufacturer's workshop on regular basis for quality assurance and testing. Acceptance Tests as per relevant Indian Standard/IEC Standard shall be carried out at the module manufacturer's workshop. Following tests as per relevant Indian Standard shall be carried out on certain number of modules from a lot (decided by WAPCOS Limited) as acceptance tests of Solar PV Modules:
 - Visual Inspection
 - Performance Test and measurement of AC & DC parameters
 - Dc reverse polarity protection
 - Islanding Protection
 - Over voltage & Under voltage withstand
 - Over Frequency & Under Frequency withstand
 - Night consumption
 - Any other test as desired by WAPCOS Limited

The contractor shall arrange for all the necessary tests required for the project in the premises of the contractor or Sub-contractor and provide assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be necessary to carry out the tests efficiently without any extra charges. If the facilities are inadequate to carry out tests as per standard, the contractor shall have to arrange suitable testing place having all such required facilities and the cost towards this will be on contractor's account.

The contractor shall also bear all charges towards travelling expenses of the Inspecting Team of the Purchaser or the authorised representatives of the Outside Inspecting agency consisting of maximum two (2) persons for to and fro journey by Air from purchaser's Headquarter, including boarding and lodging at the place of inspection and transit, if any for the purpose of Inspection and Testing.

- Prior to the delivery of the product, the contractor shall submit but not limited to the following documents:
 - Guarantees
 - Instructions for installation and operation, manual
 - Safety precautions
 - Test reports for routine tests and acceptance tests etc.

- The contractor shall deliver the product to the site only after receipt of despatch order in writing from WAPCOS Limited.

Note: Solar inverters proposed to be utilised in Grid Connected Rooftop Solar PV Power Plants under this scheme shall have post sale service centre in India. Factory test facility should have in India. Inverters offered by bidders shall have to submit the at least three years successful installation, operation and performance in Indian environment.

6. DATA LOGGER & REMOTE MONITORING

Data logging system shall be an integrated part of the inverter or a separate unit and it should be combined with remote monitoring provision in order to monitor the solar PV plant continuously using any of the communication techniques viz., computer to computer communication (Ethernet), embedded system to computer (GSM) and embedded system to embedded system (GSM, GPRS). The data logging system includes MPPT wise PV array monitoring system. The data logger should have required transducer to monitor and record the required system data.

The data logger shall have data storage capacity (minimum one year data) to record all sorts of data simultaneously round the clock. All data shall be recorded chronologically. The data file should be MS Excel / XML / any readable form and should have the facility of easy downloads.

Web based Remote Monitoring system must be compatible with data logger. The other required accessories, hardware etc. Shall have to be provided as integrated part of the system to monitor the real time data (max 20 minutes delay) through web server. The data logger shall continuously send data to the server. The system shall be monitored from anywhere through internet without installing any special software. The server shall not be provided by WAPCOS Limited or end user.

For proper monitoring of all the above mention, the authentication must be provided by contractor to WAPCOS Limited only through web based technology. **At least one user name with password has to be provided confidentially to WAPCOS Limited for proper monitoring of the plant/system at any time.** The monitoring includes various types of reports. Also after logging to web based monitoring the system should be such that it filters out those Plants, whose inverters voltage and current varies more than 25%, inverters where no power for more than 12 hours, inverters where AC output varies more than 20% for a month etc. The data logging system shall store the plant data which include but not limited to the following:

Sl. No.	Operating Parameter	Desired Specification
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1.	Input data	PV Energy, individual string voltage and current.
2.	Output data	Inverter Export Energy
3.	Other required data	Time Active, Time Disabled, Time Idle

Network Connection:

For data logging and remote monitoring, the contractor shall install MODEM (wall mounted) separately for getting internet facility at each site. In order to get reliable network connection, selection of network provider shall be made after discussing with the consumer and according approval from WAPCOS Limited. The connection may be taken in the name of the Head of the particular building/Office, but any monthly / quarterly / half yearly / annual rental charges associated with the connection shall be borne by the contractor for the whole period of Defect liability period (1 year). Neither WAPCOS Limited nor the building authority shall be liable to pay any charges for this system for 1 year of Defect liability period.

The MODEM and other accessories shall be placed within the same kiosk for Solar Inverter, Array Junction Box, Inverter Interfacing Panel etc. The contractor will be liable for any kind of maintenance (including replacement of parts) of the system for 1 year of Defect liability period. Failing which, penalty as mentioned in GCC of this tender document will be imposed.

7. INVERTER INTEFACING PANEL

Output from the Grid-tied Solar String Inverter shall be fed to the Inverter Interfacing Panel installed adjacent to the inverter through 4 Pole MCB/MCCB of suitable current rating. The outgoing feeder from the Inverter Interfacing Panel shall be brought out through a 415 V TPN MCB. The outgoing side of the Inverter Interfacing Panel shall be protected with Type-II Surge Protection Device (SPD).

All switches and circuit breakers, connectors should conform to IS / IEC: 60947 (Part I, II and III).

The panel shall be metal clad, totally enclosed, rigid, air - insulated cubical type. Protection class shall be IP 65 or better. The Inverter Interfacing Panel should conform to Indian Electricity Act and rules (till last amendment). Unidirectional energy meter (5-30 A/20-100 A/as per actual requirement) shall be provided at the output feeder of Inverter Interfacing Panel to monitor the Solar PV Generation.

8. KIOSK

The Array Junction Box, Solar String Inverter, Inverter Interfacing Panel shall be installed in suitable locations in Kiosks. The kiosks of must be of a suitable design, painted for avoiding rust, covered with a door and locking arrangement with good air circulation. The Kiosks must have security arrangement against theft, manhandling etc. Minimum clearance of the lower edge of the equipments from floor should be 1.0 m. Clearance from the front door of the Kiosk with any of the equipments / panel within the Kiosk shall be minimum 100 mm.

The contractor shall submit details of Material and Design of the Kiosk with their Design Report to WAPCOS Limited for according approval.

Necessary civil work as required to construct / fixing the Kiosks(s) shall be done by the contractor. If any civil construction is required for installing the whole arrangement, as and where required, it will be within the cost of contract value.

9. ENERGY METER

Unidirectional energy meter 5-30 A/20 -100 A/ as per actual requirement (with CT or without CT) of L&T/Genus/Secure or equivalent make as per specification and subject to acceptability of WAPCOS Limited/Concerned DISCOM/Grid interfacing authority shall be provided at the output feeder of Inverter Interfacing Panel to monitor the Solar PV Generation. The meter shall display the voltage, current, frequency, power factor, kW, kWh, kVAR, kVARh etc. The meter should be tested and approved by WAPCOS Limited/Concerned DISCOM/Grid interfacing authority.

10. INTEGRATION OF PV POWER WITH GRID

After synchronization, AC power from the inverter shall be fed to the main electricity grid through Inverter Interfacing Panel installed near the inverter and 4 Pole MCB of suitable current rating installed near the Grid Coupling Point. The MCBs mentioned above shall be installed near the existing LT Panel / main meter of the consumer.

11. CABLES & WIRING

Specification:

Sl. No.	Item	Desired Data
A.	DC Cable	
	Conductor	Tinned annealed stranded flexible copper according to IEC 60228 class 5
	Standard	V-1 F/2 PFG 1169/08.2007/VDE Standard E PV 01:2008 - 02/ Equivalent (Sheathed and Insulated)
	Make	LAPP/Top Solar/Nexans/Schneider/Polycab or equivalent (as per acceptability of WAPCOS Limited)
B.	AC Cable	
	Rated Voltage	1.1 kV
	Type	4 core, as per current rating, Armoured
	Conductor	Stranded flexible copper
	Insulation	PVC
	Standard	IS: 1554-1
	Make	RR Cable/Polycab/LAPP/Havells or equivalent (as per acceptability of WAPCOS Limited)
C.	PVC Conduit tees, bends, etc. (Hard & Flexible)	
	Standard	ASTM D 1785 UPVC
	Ambient Temperature	0°C to 50°C
	Type	UV Stabilized, Temperatures, Shock Proof, Chemical Resistant
	Make	Oriplast/Supreme or equivalent make

D.	GI Pipe	
	Make	TATA/Jindal/Bansal or equivalent make

Guideline for Installation:

- i. For installation of DC Cables, sufficient gaps shall be provided in between the module connectors and the module mounting structure.
- ii. All AC cables must be armoured.
- iii. Conductor size of cables and wires shall be selected based on efficient design criteria. The wiring size of shall be designed such that maximum voltage drop at full power from the PV Array to Inverter(s) should be less than 2%. From Inverter to AC Grid interfacing panel should be less than 3%.
- iv. Cable terminations shall be made with suitable cable lugs & sockets etc, crimped properly and cables shall be provided with dry type compression glands wherever they enter junction boxes/panels/enclosures at the entry & exit point of the cubicles. The panel bottoms should be properly sealed to prevent entry of snakes / lizard / insects etc. inside the panel. All cables shall be adequately supported. Outside of the terminals / panels / enclosures, shall be protected by conduits. Cables and wire connections shall be soldered, crimp-on type or thimble or bottle type.
- v. Only terminal cable joints will be accepted.
- vi. The cable must be laid through PVC conduit on roof and indoor. Wherever the cables (either AC & DC) are to be laid in the roof, the PVC Conduit shall be placed at least 30 mm height from the roof. Necessary permanent support / base should be provided on the PVC Conduit to maintain the gap from the roof. Maximum distance between two adjacent support / base shall be 2 m.
- vii. All cable / wires / control cable shall be marked with good quality letter and number ferrules of proper sizes so that the cables can be identified easily.
- viii. All cable shall be suitably marked or coded for easy identification. Cables and wires shall confirm to the relevant standards suppliers to specify the specification.
- ix. Cable tray (metallic preferably aluminium) of suitable size must be used for laying of cable on the floor, wherever required.
- x. All fasteners shall be made of Stainless steel/Aluminium.
- xi. Minimum two (02) number loop must be provided at the start and end each span of cable laying. Loop length shall be as per relevant Indian Standard.

12. PROTECTION SYSTEM

Lightning Protection:

The SPV power plants shall be provided with lightning & over voltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC: 62305 & IS 2309: 1989. The protection against

induced high-voltages shall be provided by the use of Surge protection devices (SPDs) and suitable earthing such that induced transients find an alternate route to earth.

Surge Protection:

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

Earthing Protection:

- a. Earthing System shall connect all non-current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV module mounting structures in one long run. The earth strips should not be bolted or interrupted. Earthing GI strips shall be interconnected by proper welding.
- b. The complete earthing system shall be electrically connected to provide return to earth from all equipment independent of mechanical connection.
- c. The equipment grounding wire shall be connected to earth strip by proper fixing arrangement. The earth strip shall be continued up to at least 500 mm from the equipments.
- d. Earthing system design should be as per the standard practices and should conform to the latest edition of IS 3043.
- e. Masonry enclosure with the earth pit of size not less than 600 mm X 600 mm X 500 mm (depth) complete with cemented brick work (1:6) of minimum 150 mm width duly plastered with cement mortar (inside) shall be provided. Hinged inspection covers of size not less than 300 mm X 300 mm with locking arrangement shall be provided. Suitable handle shall be provided on the cover by means of welding a rod on top of the cover for future maintenance.
- f. Necessary provision shall be made at bolted isolating joints of each earthing pit for periodic checking of earth resistance. An earth bus and a test point shall be provided inside control room. Test point shall also be provided at each earth pit.
- g. Minimum four (05) numbers of interconnected earth pit needs to be provided in each location. Three (03) nos for AC earthing to be interconnected and Two (02) nos. for DC which is also to be interconnected. Minimum required gap shall be provided in between earth pits as per relevant standard. Body earthing shall be provided in each Inverter, each panel, module mounting structure, kiosk and in any other item as required.
- h. Earthing system must be interconnected through GI Strip to arrive equi-potential bonding. The size of the GI earth strip must be minimum 25 mm X 6 mm.

Grid Islanding:

In the event of a power failure on the electric grid, it is required that any independent power producing inverters attached to the grid turn off in a short period of time. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.

13. LIGHTING ARRANGEMENT

Minimum Ten (10) numbers 20 watt light (LED) or as per requirement with necessary fittings and wirings are to be provided at roof and near the Inverter and Inverter Interfacing / Combiner Panel. The connection shall be done from existing power supply board of the building.

14. PROVISION FOR MODULE CLEANING

Necessary equipments and water supply lines are to be provided with suitable number of outlets in the array field to facilitate easy cleaning of the PV Modules. Plumbing arrangement should be provided at each location. Hosepipe of min. 15 m length r higher length as per requirement, bucket, mug, wiper (4 nos.) shall be supplied at each site by the contractor for cleaning of solar modules.

Adequate numbers of outlet tap with suitable platform and Post are to be laid down covering total array field for cleaning of the PV Module. Minimum six (06) numbers of post along with tap shall be provided for at PV Array field for each PV Array capacity. The plumbing equipment must be of UPVC of standard ASTM D 1785 or GI Pipe with necessary specials & fixtures as per suitability of site.

For the cases where water lines are to be laid on the roof, at least 30 mm gap should be provided in between water pipe and the roof by means of permanent brick / concrete support. Maximum distance between two adjacent support / base shall be 2 m. The whole work shall be executed within the contract value.

15. FIRE BUCKETS & EXTINGUISHERS

Minimum 12 (Twelve) numbers or as per requirement of Fire Bucket (10 litres) with 03 (three) Fire Bucket Stand shall be provided at roof. The stand shall be installed at suitable location.

Minimum Ten numbers or as per standard of 6 kg ABC type dry power portable fire extinguishers shall be provided at each location. The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards.

Standards:

Fire Extinguisher	IS 13849 (with latest amendments)
Fire Bucket	IS 2546 (with latest amendments)

16. SIGN BOARDS

Project information Signage:

For signage, water resistant, anti-corrosive paint shall be used over permanent suitable back sheet. The sheet shall be rigidly fixed on a FRP made sheet of minimum 5 mm thickness. Size of the signage shall be minimum 3' x 2'. The signage should be fixed on a separate permanent structure made of MS angle / channel with proper fixing arrangement. The whole set including the designing of the signage shall be approved by WAPCOS Limited. The Project Information Signage shall be installed at prominent place of project location.

Schematic Diagram:

Schematic Diagram of Installation of minimum size 3'x 2' must be provided adjacent to the control room / inverter room. The schematic diagram shall be made as per the procedure mentioned above for Project Information Signage. The whole set including the schematic must be approved by WAPCOS Limited.

Safety Sign:

Safety Sign must be provided mentioning the level and type of voltage and symbols as per Indian Electricity Rule at different places of a site as may be required.

The actual numbers of Project Information Signage, Schematic diagram & Safety sign will be decided by Engineer-in-Charge.

17. TOOLS, MEASURING INSTRUMENTS AND SPARES:

The measuring instruments for location will include but not limited to:

Sl. No.	Description	Quantity
1.	Digital Multi meter to measure AC & DC parameters (Fluke/Motvane or any other as approved by WAPCOS Limited)	2 nos.
2.	Screw driver (Taparia/Eastman or any other as approved by WAPCOS Limited)	2 sets
3.	Spanner (Taparia/Eastman or any other as approved by WAPCOS Limited)	2 sets
4.	Pliers	2 nos.

If any special tools, spares and measuring instruments are required at a site, those shall be provided by the contractor within the contract value. Necessary spares required within the defect liability period of 1 year shall be supplied by the contractor. Approval for list of spares shall be accorded by the contractor from WAPCOS Limited.

18. SAFETY MEASURES:

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

19. ACCESS TO ROOF

The bidder shall arrange his own for access of roof for both installation and maintenance purpose (within defect liability period) where access through stairs is unavailable and includes costs in his quoted price.

20. ACDB

This specification covers the design, manufacturing, testing at works and supply of Indoor type A.C. Distribution Boards for power supply to lighting, equipments, Pump, compressors etc. The system shall be AC 3 Phase, 4 Wire, 433 Volts, 50 Hz with effectively grounded neutral. Components mounted on the ACDB shall confirm to the latest revisions of the following Standards:

1.	IS: 13947	Degree of protection provided for enclosure for low voltage control gear and switchgear & MCCB
2.	IS 5	Painting
3.	IS:13947/1993 Part-III amended up to date	Switch Fuse Disconnecter unit
4.	IS 2705 amended up to date	CTs
5.	IS 8828/1996 amended upto date	MCB
6.	IS 1248	Indicating instruments
7.	IS 375	Wiring
8.	IS: 13703/1993 Part-I & II	HRC Fuses

21. Bill of Quantities

Sl. No.	Description of Works	Qty.	Unit
1	Supply, Installation, Testing & Commissioning of mono crystalline SPV panels/Modules of rating min. 450 Wp per panel & PV Array connected in series through in house junction box and parallel to produce 60 kWp powers in total as per Technical Specification.	135	Nos.
2	Supply, Testing & Installation of PV Array Structure for mounting of above solar modules as per Technical Specification & required to complete the work.	1	L.S.
3	Supply, Installation, Testing & Commissioning of PV Array Junction Box (AJB) as per Technical Specification & required to complete the work.	1	Set
4	Supply, Installation, Testing & Commissioning of 3 phase Solar Inverter suitable for Grid connection & 60kWp Solar Plant as per Technical Specification & required to complete the work.	1	Set
5	Supply, Installation, Testing & Commissioning of Data logger & Remote Monitoring Instrument/Unit (suitable for 60 kWp Solar plant) as per Technical Specification & required to complete the work.	1	Set
6	Supply, Installation, Testing & Commissioning of Inverter Interfacing Panel for DC as per Technical Specification & required to complete the work.	1	Set

7	Supply, Installation, Testing & Commissioning of Grid Interfacing Panel for AC (ACDB Panel) as per Technical Specification & required to complete the work.	1	Set
8	Supply, Installation, Testing & Commissioning of Kiosk for Inverter Interfacing Panel (DC) and Grid Interfacing Panel (AC) as per Technical Specification & required to complete the work.	1	Set
9	Supply, Installation, Testing & Commissioning of Dual way, Import & Export Energy Meter as per Technical Specification & required to complete the work.	1	Set
10	Supply, Installation, Testing & Commissioning of Grid Integration Arrangement as per Technical Specification & required to complete the work.	1	Set
11	Supply and laying of suitable size DC and AC high conductivity, FRLS PVC insulated 1100V copper cables & wires with PVC Conduits clamped at regular intervals as per direction of EIC, making termination etc as required to complete the work. (As per Technical Specification) (Quantity of Cables & wires should be as per actual requirement at site to successful completion of the work as per direction of EIC)	1	L.S.
12	Supply, Installation, Testing & Commissioning of Protection System as per Technical Specification & required to complete the work.	1	L.S.
13	Supply, Installation, Testing & Commissioning of Lightning Arrestor as per relevant IS/BIS/concerned guidelines/Technical Specification & required to complete the work.	1	L.S.
14	Supply, Installation & Testing of GI pipe Earthing confirming to IS standard with earth pit chamber with cover, Locking Arrangement, 50x3mm GI Strip, riser, GI pipe earth electrode, Earth bus etc. all complete. (As per Technical Specification)	1	L.S.
15	Module Cleaning Arrangement including Supply & installation of Plumbing materials with allied Civil works as per Technical Specification & required to complete the work.	1	Set
16	Fire Fighting Arrangement (Fire Buckets & Extinguishers) as per Technical Specification & required to complete the work.	1	Set
17	Project Information Signage as per Technical Specification & required to complete the work.	1	L.S.
18	Schematic Diagram as per Technical Specification & required to complete the work.	1	L.S.
19	Safety Sign as per Technical Specification & required to complete the work.	1	L.S.
20	Tools, Measuring Instruments and Spares as per Technical Specification.	1	L.S.
21	All Other items, fittings, fixtures, devices, instruments, equipments etc. and cables including ACDB, LED Lighting arrangement, Transport Charges & other cost for installation, testing & commissioning of the complete system (60 kWp Solar plant) and as required to complete the work.	1	L.S.

SECTION– VIII

FINANCIAL BID

Financial Form

NAME OF WORK: SUPPLYING, INSTALLATION, COMMISSIONING OF 60 KWp GRID CONNECTED ROOFTOP SOLAR POWER PLANT INCLUDING 5 YEARS COMPREHENSIVE MAINTENANCE (FROM 2ND YEAR) AT WAPCOS CORPORATE OFFICE, GURUGRAM

NIT NO: WAP/POW/NIT/CSR/MISC/2022/01

Name of the Bidder/ Bidding Firm / Company:				
<u>PRICE SCHEDULE</u>				
(This BOQ template must not be modified/replaced by the bidder and the same should be submitted after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)				
NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	BASIC RATE (inclusive of all taxes except GST) In Figures To be entered by the Bidder Rs.	Total Amount Without Taxes	Total Amount In Words
1	2	33	53	55
1.01	SUPPLYING, INSTALLATION, COMMISSIONING OF 60 KWp GRID CONNECTED ROOFTOP SOLAR POWER PLANT INCLUDING 5 YEARS COMPREHENSIVE MAINTENANCE (FROM 2ND YEAR) AT WAPCOS CORPORATE OFFICE, GURUGRAM			
Total in Figures				
Quoted Rate in Words				

Date:

Place:

Signature(s) of Bidder (s) Name & designation